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ABSTRACT

This paper describes the collecting of normative data concerning the development of East Indian babies and analyzes the information in terms of: (1) the influences of socioeconomic class; (2) urban-rural environmental differences; (3) sex differences; and (4) comparisons with children from the United States, Israel, and the United Kingdom. The three groups of children studied were upper class infants from urban Baroda, India, lower class infants from Baroda, and all classes of infants from rural areas around Baroda. Subjects for the longitudinal study were 1-30 months of age, mainly upper class urban children and about one-third lower class urban children. Data on all other subjects covered only the first 15 months of age and were treated cross-sectionally. Motor and mental measurement of each infant was taken at one month intervals using the Bayley Scales as the main instruments. Detailed analyses of the data are presented in the numerous graphs, tables, and summary found in the report and appendixes. Some related Indian research reports, possible hypotheses which might explain the results, implications for further study, and specific questions raised by the researchers conclude the paper. (SDH)

MENTAL AND MOTOR GROWTH OF INDIAN BABIES

(1 month — 30 months)

(Longitudinal Growth of Indian Children)

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FINAL REPORT

Pramila Phatak, Ph.D.

PS 007345

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Department of Child Development
Faculty of Home Science
The Maharaja Sayajirao University of Baroda
Baroda (INDIA)
1970

With Compliments

from

Prof.(Mrs.)Amita Verma

Director of the study

and

Dr.(Smt.) Pramila Phatak

Chief Investigator

Department of Child Development

Faculty of Home Science

M.S.University of Baroda

Baroda-2

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Smt.Pramila Phatak, Ph.D.

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ERRATA

Chapter	Page	Line	Incorrect	Correct
Acknow-ledgement	(iii)	14	proposal Sarabhai	proposal, Sarabhai
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		20	3% to 97%	3% and 97%
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	44	**Table 6** foot note		* reference table
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IV	47	Table 7 column headings		(A-9)* under UrUp-UrLo (A-13)* under UrUp-RuLo (A-18)* under UrUp-RuUp (A-19)* under UrUp-Ru (A-20)* under UrLo-RuLo
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VI	72	11	testings	testings of
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	79	1	underlined in	shown
		1	Appendix	Table
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VII	81	2	correlation	correlations
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FOREWORD

It is with great pleasure and optimism that I write this foreword to the report of the first major basic research carried out in the Child Development Department of this University.

The M.S.University of Baroda since its inception has been in the forefront in our country, in many fields of academic pursuit. I hope this work will prove its worth by providing a model for researches of its type and will open up new horizons for other research workers in the country.

An attempt is made here to develop and execute a research design which is faithful to the scientific method in a highly elusive period of chid development, viz. infancy.

This research would serve its purpose, if it encourages young research oriented minds to probe deeper into the various aspects of growth and development of Indian children. To train the research staff and to provide the opportunity for developmental studies it may be hoped that the Research and Testing Unit which has been built with strenuous efforts will continue to function successfully.

Contd...

I am confident that this effort will find its due place in the existing research literature on the subject and that forthcoming research efforts in the field will find necessary financial support to continue to build a body of knowledge about Indian children which is conspicuous by its absence.

N.K.VAKIL
VICE-CHANCELLOR
M.S.University of Baroda

Baroda
8th December, 1970.

PREFACE

Child development as a field of specialisation is of a very recent origin in India. The institutes that offer courses in Child Development directly or indirectly are special departments under Faculties of Home Science, departments of Psychology under Faculties of Arts, Departments of Education or Teacher training centres, Departments of Pediatrics and Department of Social and Preventive medicine under medical colleges and in few faculties of Social Work.

Research in this specialization is conducted by institutions such as National Institute of Nutrition at Hydrabad, and B.M.Institute at Ahmedabad. Some national agencies like ICMR, NCERT and ICSSR undertake research themselves and/or give financial and other support to other semi-governmental and private institutions. Yet, none of these institutions have a history of continuous research in any areas of child development, which is of a long standing.

A part of an ongoing research, started in 1962, at the Child Development Department of M.S.University of Baroda, is reported here.

The Post-graduate programme in Child Development was first established here, in 1955, Recognising the need for a training course for principals and administrators of pre-school institutions, a post-graduate diploma in Nursery School Education was instituted in 1959. In 1961, the Faculty of Education and Psychology, in close collaboration with the Department of Child Development, instituted an undergraduate diploma in early childhood education. Though the primary responsibility of a University Department is teaching and research the addition of community service to these two, prevents any research done in the department from being sterile and merely academic. In light of this, the staff of the Child Development Department organise parent and community education programme for parents of pre-school children. The department works in very close cooperation with a large number of local voluntary and government agencies and organisations concerned with the education, recreation, health and welfare of children and families. Apart from these local organisations, various national and state agencies such as Directorate of Extension, Ministry of Food and Agriculture, have jointly sponsored short term refresher course in our department.

All of us in this department were of the firm conviction that for developing a good teaching programme for students, and also for working effectively in the community, we needed to develop a well integrated departmental research programme. It had been our definite belief that isolated projects on a wide variety of problems would not take us very far in building a large body of knowledge on Indian children and families. It was with this idea that our present research, in the department, is planned. Formulation of plans for such a project necessiated a survey of teaching and research in the general field of Child Development and Family Relationships in the known institutions in India.

In response to this survey in 1964, a large number of master's and doctoral theseswere reported. This fact makes it evident that much of the research data is being collected by graduate students. It is recognised that the work of graduate students is often not profound, but at the present stage of development of research in India, even small contributions may be helpful to others in suggesting further research. In planning the research in our department we felt that instead of the graduate students doing their work individually, the departmental research projects should absorb their efforts, so that much of the data that normally lies unexplored in institutions may be gainfully analysed and made available to workers in the field, especially, teachers of child development, pediatricians, and social workers. Such a scheme would guard against scattered, isolated and fragmented studies which seem to be cropping up in the field, everywhere.

In 1959, Dr.Russell Smart, a Visiting Professor in our department from the University of Rhode Island, got us interested in collecting normative data on children. The result was this major study on motor and mental growth of infants and pre-school children. In 1961, Dr.Thomas Poffenberger, came to the department as a Visiting Professor on the Iowa State Project, sponsored by the Ford Foundation. A very major share of the credit for the development of research activities in this department goes to him. In 1964 we were fortunate in getting Dr.Pramila Phatak on loan service from the Faculty of Education and Psychology, who started in our department as the coordinator of researches. In 1965 she accepted appointment on the regular faculty of this department. During all these years she has carried on the project work with great integrity and enthusiasm.

In this project we have tested a large number of children longitudinally, and cross-sectionally.

These children belong to all socio-economic classes and come from the urban setting as well as rural areas around Baroda. We have also taken photographs, of babies performing the test items with which we hope to prepare teaching aids for motor and mental performance during the first three years of life. In addition, we are also attempting to document on film some classified performance of the babies.

Besides what is reported here, there is a vast variety of research data collected mathodically and with great care, which is based on sound research design, which is not analysed for lack of funds and permanent research staff.

In the light of all this, it seems a great tragedy that no continuous support is forth coming for research on a permanent basis.

The amount of money, man-hours and material invested in a project of this proportion should yield a rich harvest of knowledge based on facts if exhaustively analysed. Incidentally at present we are testing some brain damaged children longitudinally, referred to us by a staff member of the Department of Pediatrics, Baroda Medical College. We may not be able to continue to give this cooperation once the project is over.

We do hope that support will be forth coming for a permanent research unit which would be a continuing set up with trained and experienced research staff and which would become an integral and invaluable part of this department of child development and family relations.

Amrita Verma
DIRECTOR

ACKNOWLEDGEMENT

1. I am indebted to Prof.Amita B.Verma, the Director of the research project and Head of the Child Development Department for giving me an opportunity to explore the growth and development of Indian babies with relaxed schedule of routine duties. This is a report based upon the data with high potentialities of further work. Dr.Thomas Poffenberger's role in creating this opportunity could never be forgotten. With his keen insight into the existing academic dearth of such Indian studies he laid the foundation of a promising programme.

2. An exploratory research of the present magnitude has to be the work of a team. Moreover, it is bound to involve some loose approaches, which might be accompanied by anxieties and frustrations. I am grateful to the research staff for being patient with me and doing the work as best they could do.

3. Dr.Nancy Bayley always showed keen interest in our work. She promptly answered our querries about the scale, its administration and use. This made our testing clear and smooth. She also suggested some guide lines for the analysis of the data through her publications and personal contact. Dr.Emmy Werner who visited the project twice, first time as an expert and second time incidentally, has always been a

friend and a guide. Her friendly guidance has helped us to keep the programme on track. Dr.J.O.Farquhar, Dr.H.P.Tait and Prof.J.O.Forfar, the visiting professors in the Medical College, Baroda, under WHO programme gave us confidence about our work. They encouraged us to go to the Indian Pediatriticians' platform and present our observations. It is a matter of gratification that we could present three papers to this audience. In fact, today, the pediatricians is the major group expressing interest in our works. I also take this opportunity to thank Dr.A.T.Phatak, my son and assistant professor in [illegible] Department of Pediatrics, Baroda, for being ever ready to help me in any matter from academic discussions to some organisational problems.

4. The parents of the babies especially those who were tested repeatedly really are the backbone of the present study; but for their cooperation the work would have never been accomplished. Our gratitude to them is beyond expression. The testings of babies in the villages was immensely helped by the cooperation offered by the District Development Officer at Baroda and Sarpanch s of the villages. Our thanks are due to them also.

5. In order to prepare some teaching aids an attempt was made to document the classified performance

of the babies under testings. All of this exploratory work could not be included in this report. However I take this opportunity to express my sincere thanks to Shri Narendrabhai Mehta from the Photography Department of the Faculty of Fine Arts, and his colleagues at Baroda. I would like to make a special mention of Shri Sadiq Sayeed who laboured with us and took the pictures of children's performance.

6. Besides those who helped the furtherence of the study there are a number of people who have helped the project. Our thanks are due to some Industrial concerns who showed active interest in our work. In the early stage of the project when we were still anxious about the budgetary proposal Sarabhai Chemicals Limited, Alembic Chemicals Limited, Glaxo Laboratories of Bombay and the Parke Davis & Co., donated Pediatric Vitamin drops. These vitamin drops were given to the babies of class IV as a token of appreciation for their cooperation. Sarabhai Chemicals were also obliging in supplying to us, gratis, sugar pellets to the specifications of Nancy Bayley for testing purposes.

P. Phatak
CHIEF INVESTIGATOR

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B-5 : Graphs of Means and Standard Deviations of Motor Scores of Boys and Girls from Rural areas.

B-6 : Graphs of Means and Standard Deviations of Motor Scores of Upper and Lower S-E groups from Rural areas.

B-7 : Graphs of Means and Standard Deviations of Mental Scores of the total Group from (a) Urban Upper S-E group, (b) urban Lower S-E group and (c) Rural all S-E classes combined group.

B-8 : Graphs of Mean and Standard Deviations of Mental Scores of Boys and Girls from Upper S-E Group in Baroda (Urban).

B-9 : Mental Growth Speed graphs of Boys and Girls from upper S-E group in Baroda (Urban).

B-10 : Graphs of Means and Standard Deviations of Mental Scores of Boys and Girls from Lower S-E Group in Baroda (Urban).

B-11 : Graphs of Means and Standard Deviations of Mental Scores of Boys and Girls from Rural areas.

B-12 : Graphs of Means and Standard Deviation of Mental Scores of upper and lower S-E Groups from Rural areas.

B-13 : Means and Standard Deviations of the Motor Performance Scores of Babies from U.S.A., U.K., Israel and India.

B-14 : Means and Standard Deviations of the Mental Performance Scores of Babies from U.S.A., U.K., Israel and India.

APPENDIX C

TABLE C-1 : Percentile Scores on motor scale for boys (Rounded Figures).

TABLE C-2 : Percentile Scores on motor scale for girls (Rounded Figures).

TABLE C-3 : Deviation Motor Quotients (DMQ) equivalents of total point scores for ages 1-30 months.

TABLE C-4 : Motor Scale arranged in developmental sequence of difficulty order for 50% pass with limits for 3% to 97% pass.

TABLE C-5 : Percentile Scores on mental scale for boys (Rounded Figures).

TABLE C-6 : Percentile Scores on Mental scale for girls (Rounded Figures).

TABLE C-7 : Deviation mental Quotients (DMEQ) equivalents of total point scores for ages 1-30 months.

TABLE C-8 : Mental scale arranged in developmental sequence of difficulty order for 50% pass with limits for 3% to 97% pass.

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I - INTRODUCTION

(i) Problem :

Prior to taking up the present project a survey of institutions teaching and conducting research in child development in India was done by Dr.Thomas Poffenberger, the visiting professor under Ford Foundation scheme and Prof.Amitaben Verma, the head of Child Development Department. The survey obtained information about the areas in which research was needed as well as researches completed and in progress and the institutions conducting the studies. Subsequently the report of the survey was published by the M.S.University Press, (Poffenberger at al 1964). The survey indicated that the areas of pre-natal, infancy, pre-school and marriage needed more research to provide basic data for the course contents. The survey was supplemented by personal visits to some institutions in Delhi, Ahmedabad, Bombay etc. The need for building a body of data about how children grow and develop, for courses in child development was not only felt by our staff but was supported by members on the staff of these institutions visited. It was often felt that students' understanding of the subject matter was superficial or mechanical due to the lack of the supporting research evidence.

There was also curiosity about how Indian babies compared with Western babies. Do different environmental and cultural forces cause differential development ? Such general curiosity and frustration at the lack of Indian data motivated the present research project.

Dr.Poffenberger had brought with him kits of the Bayley Infant Scale of Motor Development and the Bayley Infant Scale of Mental Development. He proposed using the Bayley Scales and to begin longitudinal testing. Under his guidance the testing laboratory was set up and the plan of work was finalised. A part of the Ford Foundation Research Grants for the development of graduate and research programme of the Faculty of Home Science was used for executing the plan.

The present research was undertaken mainly to gather normative data about the development of Indian babies and incidentally to compare their performance with the Bayley's norms on U.S.A. babies.

(ii) Design of Data Collection :

Development is the outcome of the interaction between genetic factors and environmental forces. The outcome of the interaction is meaningfully observable after birth. As the child grows his earlier life experiences also form a powerful force in the actual shape of his growth and development at any given time. Naturally as the child grows older his individuality becomes more discernable reflecting the individualistic nature of the antecedent forces. Hence in order to have a reasonable understanding of developmental picture two things seem to be important. Firstly, the repeated observations of the same children are helpful in discerning the commonality of growth and developmental shifts in behaviour from the diversity of individual variations. Secondly, the incidence of commonality will be larger at earlier ages. In short, observing the process of growth and development as it unfolds in developing Indian babies ideally needs longitudinal data collection on a sufficiently large sample. The research forms of Bayley Scales of Motor and Mental Development cover the period of life from one month to thirty months.

It was decided to start testing babies as early as they would be available, preferably at one month and continue to do so at a regular interval of one month. The period of testing was fixed to be the birth-date of the child ± 3 days. The work was started with the children of cooperative parents who had registered their babies for admission to Chetan Balwadi,* the Laboratory Nursery School of the Child Development Department of the University. In 1966, we planned to test babies from lower S-E classes in Baroda and from all S-E classes in the rural areas around Baroda cross-sectionally. For this programme financial support could be obtained from P.L.480 funds.

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* Chetan Balwadi followed a procedure of pre-natal registration of babies for admission after 2½ years.

(iii) Plan of Analysis :

In the present report, all the data collected would be treated cross-sectionally. Realising the significance of longitudinal data for developmental studies and of a large sample for cross sectional studies the test records from the upper S-E class in Baroda would be used as the basic sample for study. Two more advantages were also visulised in using the upper S-E class records from Baroda as the basic sample for norms. Firstly, only this group would cover test records for the full period of infancy as well as the scales. Secondly, it was felt that in a developing country the norms calculated on 'advantaged' children would provide a target of achievement for welfare programmes. At least such a treatment would give a better insight into the effects of poverty, dearth and general impoverished environment on the motor and mental performance during infancy.

The normative analysis would cover the average norms, percentile scores and deviation quotients. The speed of growth and development and median and other placements of the items would be studied on this sample. The item placements would be used to describe the motor and mental performance of the babies at each month. The records of this group would also be used in studying the application of the scales to Indian babies. The performance of babies in the other two samples, namely, lower S-E class in Baroda and the rural sample would be compared on the basis of the average scores.

Sex differences would be studied in all the three groups. Comparisons of mean total scores of various S-E groups and urban and rural groups would be attempted.

The total score performance of Indian babies would be compared with similar observations of babies from U.S.A., U.K. and Israel.

(iv) Plan of Reporting :

The two major sections of motor performance and mental performance of the babies under study would be described on similar lines and with the same samples. Hence, repetitions of sample analyses and procedural details of statistical analyses would be avoided in the section of mental performance.

Most of the Tables of calculated results would be given in Appendix A and would be referred to in the various Chapters. They would present the means and standard deviations of total scores of various groups. Differences in the means and their 't' values for selected comparisons would be also included in these tables. These tables in addition would cover the tables of calculations of percentile scores and deviation quotients for upper S-E class babies from Baroda. Tables giving the ages at which different percentages of babies would pass each item (age-placement) based upon upper S-E class Baroda sample would also form a part of this Appendix. On all tables where levels of confidence are to be indicated they would be shown by (*) for the .05 and (**) for .01 levels. Appendix B would consist of all graphical presentation.

In Appendix C would be given the normative tables of rounded percentile scores for boys and girls, tables of deviation quotients and the scales arranged in the difficulty order for 50% of the sample passing the item.

The numbering of Tables and Graphs is confined to each Appendix and are prefixed with the Appendix code letter A, B and C.

II - METHODOLOGY

(i) Tests : (Bayley 1961a, 1961b)

(1) Motor Scale : Bayley Infant Scale of Motor Development (Revised) consists of 67 items and are designed to measure the motor abilities from birth upto four years of age. The initial standardization of the tests was worked out on a sample of 61 children measured repeatedly at different intervals from 1 month to 6 months. The range of test records for the different months studied was 44 to 61. For this sample the scale had mean reliability index of 0.77 (split-half coefficients corrected by the Spearman-Brown Formula).

The revised scale used in the present study, was tested on 1200 infants of ages 1-15 months from primarily low income clinic population, 40 percent Negro and 60 percent white. Additional 300 infants of middle class white families were measured and the tentative norms were worked out.

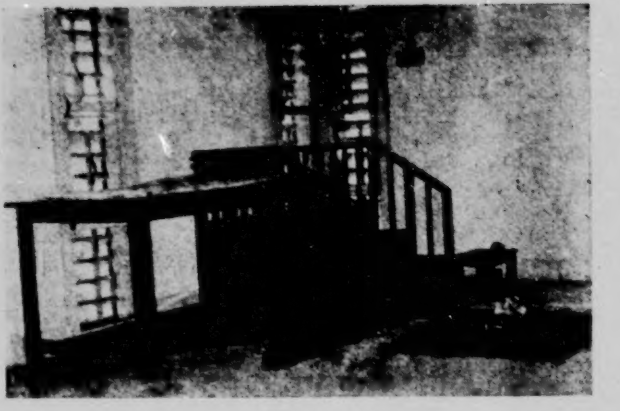
As described in the manual for the tentative form (pp.1-2) the items in the scale were mainly based upon the California Infant Scale of Motor Development published in 1936. The items cover manifestations of neuro-mascular maturity in the form of body control and coordination in movements for pre-walking and post-walking stages including the intermediary period when the child is learning to walk. Items for the earlier period refer to simple bodily movements and grasping and manipulating objects while the items for the later period refer to skills of locomotion and handling of objects. The material comprises of such objects as ring, cube, pellet, bell, walking steps and board, ball, etc. The material can be seen in Figures 1 to 6.

The items in the present form are arranged in difficulty order in the light of performance of a new sample of 996 infants approximately equal in numbers at each month from 1-15 months.

(2) Mental Scale : Bayley Infant Scale of mental development consisted of 163 items. The items for the earlier ages i.e. upto 15 months - are developed by using the original California norms published in 1933 as frame of reference. On the basis of 1000 tests the items were selected, directions were rewritten, difficulty order was noted and means and SDs of the total point scores were calculated.

The items for the second year were taken from the California Pre-school Scales of Dr.Adele S. Jaffa.. The age placements were obtained from the same sample of Berkeley Growth Study. As this was a research form some items were borrowed or adapted for trial from the scales of Griffiths (1954), and Cattell (1940) A few items of the Stanford Binet were

Fig. 1 Material and arrangement for Motor testing in the Laboratory



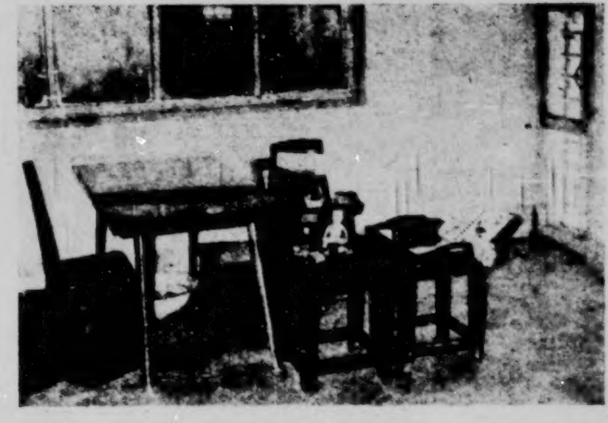


Fig. 2 Material and arrangement for Mental testing in the Laboratory

Fig. 3 Testing arrangement in the Village

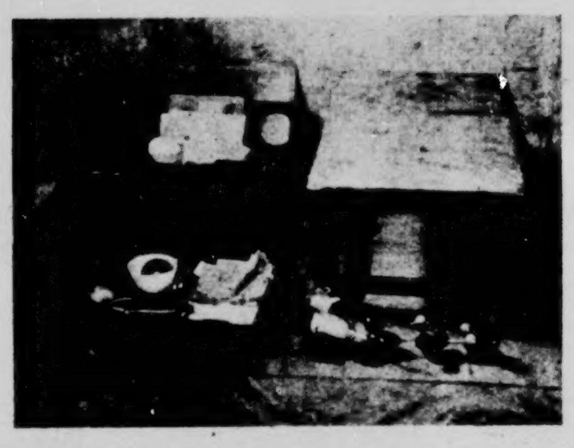


Fig. 4 Testers in the Village

Fig. 5 Testing in the Village

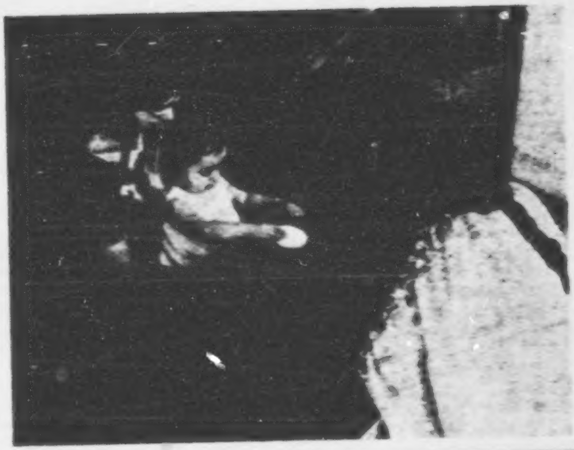


Fig. 6 Testing in the Laboratory

listed for simultaneous application with the upper portion of the research form. These items were not used in the present study.

The Bayley Scales of Development (BSID) are published recently in 1969. The final scales and norms are bound to have some modification of items, directions and scores in the research form which we have used. Item differences in the two versions of the scales are given in the Appendix D.

(ii) Testers :

The description of the tests makes it clear that undertaking of testing implies training of testers. There are no courses in the University here which involve training for testing babies on any such tool. Consequently it was necessary to incorporate in the project the training of persons in service for testing the babies.

Any person selected to work as a tester was required to study the scale and observe the testings from the observation room fitted with one way vision glass. After about a week of such observations and discussions about the scale, she was involved in testing along with a trained tester. In about two weeks time or so, depending upon the confidence of the trainee - she was assigned a suitable baby for testings were supervised and discussed so as to bring the testing to the level of acceptance.

During the six years of testing programme with various samples 15 testers were trained. The testers who worked during the first one and a half year amongst whom was the chief investigator were trained for testing, under the supervision of Dr. Hoffenberger.

(iii) Testing Programme :

(1) Major Sample : The first baby of the longitudinal sample was tested on 4th March 1963. This was a female child of 5 months old. During the first year of the project, getting the babies for longitudinal study was a greater concern and much attention was not paid to the age of the child at the first testings. The oldest baby invited for the first testing in the longitudinal sample was 17 months old. Soon it was realised that in order to have an appropriate longitudinal sample, attention should be paid to the baby's age at the first testing. Slowly the new appointments for testing were restricted to lower ages and finally to one month old babies only. The sample taking was closed when 75 babies were registered for testing at one month. The testing programme continued till 1969.

The present project was mainly directed towards collecting normative data. Hence, it was felt extremely important to record the testings of healthy babies. At the time of testing if any child appeared sick he was examined by a

Pediatrician and his motor and mental testing was recorded only if the pediatrician recommended to do so.

(2) Supplementary Samples : The cross-sectional samples from low S-E classes in Baroda and from all S-E classes in the rural areas around Baroda were confined to first fifteen months of life. The testing programme and procedure for these samples remained the same as that for the longitudinal sample. To ensure the inclusion of only normally healthy babies in these samples, health check of the baby by a pediatrician and his evaluation of the baby's health as normal was made a pre-requisite for motor and mental testings.

The testing set-up could not be kept identical for the rural and urban testings as the testing of babies in rural areas was done by carrying the testing kit to the village. The testing situation in the villages differed from the urban laboratory setting in the following manner.

Firstly the testing in the villages was done on low tables. The mother and the tester sat on the ground. The mother had the child on her lap. Secondly, the testing in the village by and large went on with some people around. We could very rarely get a separate room for testing, and often our own team and panchayat people did their work in the same room. Thirdly, in some villages we did simultaneous testing of two or even three babies by three testers working at three tables in the same room. Usually such a room would be spacious. Figures 1 to 6 depict the two testing set ups.

(iv) Procedure of Testing :

Administration of the tests had been described in details in the manual for the tentative forms by Bayley. She had also explained what responses of the child should be observed for each item so as to score them as passed or otherwise. For certain items it was proposed that the simultaneous observation for motor and mental performance might be done. It was also suggested that the observations of certain items could be done outside the testing situation.

Each testing of every child was done by prior appointment. Before starting the testing the preliminary information about the family and the child was noted. The medical check up was followed in the case of lower S-E group and rural babies, and if needed for the upper class baby. The cooperation of the child in testing was the basic principle following in presenting the items. The actual presentation of the items and observation and recording of the child's performance were done according to Bayley's instructions and completed as a part of testing. On an average testing took

30 minutes.

Thus the data collection involved both longitudinal and cross-sectional testings of babies from 1 month to 30 months on BSID (Research Form), at an exact period of the child's birth-date with ± 3 days. The samples were taken from all socio-economic classes from urban (Baroda) and rural areas (around Baroda). The cross-sectional testings were by and large confined to first fifteen months only. This was done under three programmes as follows :-

(1) Longitudinal testing of upper S-E classes with some incidental cross sectional testing of babies from Baroda.

(2) Cross-sectional testing of babies from lower S-E classes and longitudinal testing of a small group.

(3) Cross-sectional testing of babies from rural area around Baroda.

III - SAMPLES

(i) Socio-Economic Classes :

(1) Urban Population : In selecting the babies from lower S-E groups in Baroda Socio-Economic Status Scale for Urban Population (Kuppuswani, 1962) was used. The longitudinal sample was also classified into S-E status classes by applying the same scale. The scale is based upon education, occupation and income of the head of the family as these three are considered to be contributing to social status of any individual. Each of the above variables is covered by a seven point scale. The weightages for the three variables are fixed as 7,10 and 12 respectively. The total possible score is 29 and they are classified into five groups as follows :

Sess Class		Total score
I	.....	26-29
II	.....	16-25
III	.....	11-15
IV	.....	5-10
V	.....	below 5.

(2) Rural Population : The sample from rural areas was classified into various Socio-Economic Status classes by applying Socio-Economic status scale - Rural (Pareek U. and Trivedi G.1964). The scale is based upon the following information about a rural family.

I Head of the family :

1. The occupation.
2. Education.
3. Social participation of the head of the family.

II The family :

1. The caste.
2. Land ownership.
3. Kind of housing.
4. Farm powers.
5. Material possessions (chairs, radio, clock, sewing machine, fans etc.)
6. General nature :
   - (a) Type of family.
   - (b) Size.
   - (c) Distinctive features.

The first seven items are on a six point graded scale. Items 5 and 6 are additive in nature and have a weightage of one for each sub item. The socio-economic status of a family is determined by applying the following classificatory scale to the total score.

Category or class		Total score
I	Upper class	above 43
II	Upper middle class	33-42
III	Middle class	24-32
IV	Lower middle	13-23
V	Lower class	below 13

The information about family and specially about the father of the sample child was collected as a routine when the child came for testing.

(ii) Samples for the Present Study :

Irrespective of longitudinal or cross-sectional method of data collection all the test records of babies from 1-30 months were classified into three major study samples. They are

i) Records of upper S-E class babies from Baroda.
ii) Records of lower S-E class babies from Baroda.
iii) Records of babies from rural areas.

The analysis of the total records under each sample from the urban and rural areas, each sample according to S-E classes and according to the method of data collection are given in Table 1.

Table 1 : Total test records of babies from different areas and S-E classes collected by longitudinal and cross sectional methods.

Area	S-E class	No. of records	Longitudinal	Cross-sectional	Total records
Urban (Baroda)	I	801	3886	255	4141
	II	1618			
	III	1722			
	IV	1086	340	750	1090
	V	4			
Rural	I	4	--	653	653
	II	74			
	III	158			
	IV	299			
	V	118			
			Total :-		5884

(iii) Background Characteristics of the Babies in the three Samples :

In applying the two socio economic status scales a good deal of family information about the sample babies was collected. This information was used in describing the background characteristics of the babies under three groups, viz. (i) The upper S-E class (I,II, III) babies in Baroda. (ii) Lower S-E class babies in Baroda (IV,V), and (iii) All S-E class babies in the villages.

Each item of information available, such as fathers' education, etc. was categoriesd with appropriate classificatory system and the frequencies of the test records were counted. The descriptions refer to the traits with large frequencies and their values in percentages. It must be pointed out here that all the longitudinal records of the same child were treated as independent records coming from identical families.

(1) The upper S-E class babies in Baroda : The available information for the babies in this group covered the following aspects :

i) Sex
ii) Birth order of the child
iii) Parents' ages
iv) Parents' education and occupation
v) Family income

vi) Religion and caste
vii) S-E class.

The analysis showed that the group records consist of both boys and girls. However at each month the records of girls are less in number.

Irrespective of sex about 45% of the records are of the first born babies. Approximately 94% records belong to the first four orders. There are a few records of babies born at later orders even beyond 9. Majority of the babies whose testing records are under study have young parents of below 35 years of age. Most of them have educated fathers working as professionals and clerks. Their mothers have gone to high schools and are housewives. Their family income ranges from Rs.2,000 to Rs.14,000 per year. They belong to the three upper S-E classes in the proportion of approximately 1:2:2. Majority of them are Hindus belonging to upper and middle castes.

(2) The lower S-E class babies in Baroda : The information about this group covered the following aspects :-

i) Sex
ii) Birth order
iii) Family income and earning members.
iv) Parents' education and occupation.
v) S-E class.

As the analysis points out there are boys and girls in this group at each month. 25% of the records are of the first borns. The majority belongs to first four orders of birth. There are a few babies born at later orders upto 9 and two have been born at beyond 9th order. The largest group of fathers are educated through the first four years of education and fathers educated beyond the middle school are rare, approximately 5% of the total. 12% of the total are illiterate. The occupations of these fathers seem to be related to their education. Most of them are engaged in unskilled and semiskilled works; only 13% are skilled workers. The income of the families by and large (70% of the records) falls between Rs.101 to Rs.299 per month i.e.Rs. 1201 to 3599 per year. However where there are more than one earner in the family the income has reached even upto Rs.650 per month; 5% of the total records belong to this category. The remaining 25% of the records belong to the income group of Rs.51 to Rs.100 per month i.e. Rs.601 to Rs.1200 per year.

Half the mothers about whom the information was available were illiterate. Out of the other half about 35% are literate or had completed the first four grades in a primary school and 14% had completed the middle school education. 90% of the records are of babies whose mothers were mainly occupied in running the house. Out of the remaining 10% who were gainfully employed 9% did unskilled work. Except 4 babies all the babies belong to the S-E class IV.

(3) Babies in Villages : The test records of the village babies were collected from 27 villages around Baroda beyond 5 miles but within reach by approximately 30 minutes travel. The map shows the location of the villages. (Fig.7).

The villages covered for testing the babies differed from the point of view of the modern conveniences of daily life such as electricity, piped water supply public transportation and school. Seven of these villages were large, had electricity and piped water supply. They had a secondary school and were linked to the nearby cities by easy road transport. Six villages were quite small had no electricity or piped water supply. They had only primary schools and were linked to some pucca road by a katchha road where public transport would be available. The remaining 14 villages had piped water and primary schools but no electricity. The approach to them from the public road was by countryside pathways not very convenient for transportation. The background information of this group covered the following aspects :

i) Sex
ii) Birth order
iii) Family type and housing structures
iv) Family possessions
v) Parents education and occupation
vi) S-E classes.

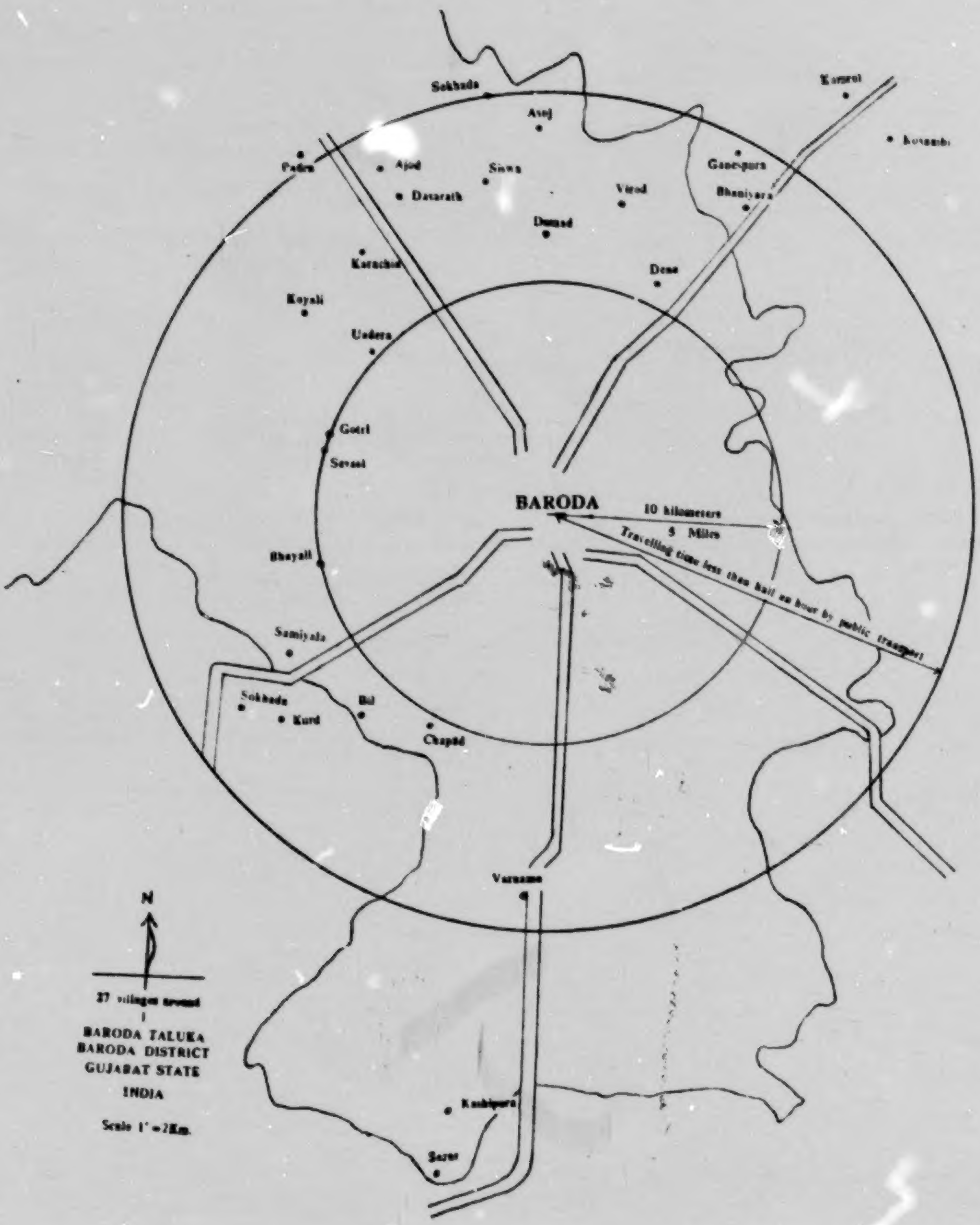

Sokhada
Asoj
Kamrol
Kosambi
Padra
Ajod
Siswa
Dasarath
Virod
Ganespura
Bhaniyara
Dumad
Karachia
Dena
Koyali
Undera
Gotri
Sevasi
BARODA
10 kilometers
5 Miles
Travelling time less than half an hour by public transport
Bhayali
Samiyala
Sokhada
Kurd
Bil
Chapad
Varnama
N
27 villages around
BARODA TALUKA
BARODA DISTRICT
GUJARAT STATE
INDIA
Scale 1" = 2Km.
Kashipura
Sarar

Fig. 7 : Location of villages where the babies were tested.

The analysis showed that the group consisted of both boys and girls at each month from 1 to 15 months. Approximately 50% of the records were of babies with first and second birth order. About 80% were covered upto fourth birth order. Out of the remaining, 1% were of birth order beyond 9. The records were almost equally divided amongst single and joint families. Common residential quarters of these families were huts and katchha houses of mud walls and thatched roofs. Approximately 24% lived in brick houses and about 8% lived in big houses with more than 5 rooms and more than one storey. About 45% of these families did not possess any land, 30% had lands upto 5 acres and only 5% had lands more than 20 acres. Only 11% of the families have improved agricultural implementations. As regards other possessions 50% had either farm or dairy animals at home. Slightly more than 50% had cycles at home. 24% possessed chairs and 21% had radios.

About 18% of the fathers in this group were illiterate, 41% were literate or had completed first four grades, about 15% had completed (7 years of schooling) (middle school grades) and 12% had completed high school education. The common occupation of these fathers were cultivation, labour and service or petty employment. 86% of the fathers were engaged in these three occupations. Only 6% out of the sample followed the caste occupation or trade. The mothers in majority were illiterate (56.20%). About 28% were literate or had completed first four grades. Only one mother was a graduate. As regards the occupation of the mothers about 70 percent were engaged in running the house. Out of those who were grainfully employed 20 percent were labourer and 2% cultivators. The babies in this group come from all socio-economic classes.

IV - MOTOR PERFORMANCE OF INDIAN BABIES

(a) Upper S-E class Babies :

(i) Sample : 4141 test records form the sample for the study of the motor and mental performance when classified cross-sectionally for each month from 1-30 months they range from 60 to 178. Table 2 gives the sample records classified according to the age and sex of the babies.

Table 2 : CLASSIFICATION OF SAMPLE RECORDS FROM UPPER S-E GROUP IN BARODA (URBAN) ACCORDING TO AGE IN MONTHS AND SEX.

AGE IN MONTHS	BOYS	GIRLS	TOTAL
1	34	26	60
2	66	38	104
3	76	43	119
4	68	56	124
5	85	64	149
6	96	70	166
7	94	70	164
8	97	76	173
9	95	74	169
10	103	66	169
11	100	72	172
12	105	73	178
13	88	76	164
14	98	68	166
15	106	72	178

Table 2 continued.

AGE IN MONTHS	BOYS	GIRLS	TOTAL
16	84	56	140
17	77	61	138
18	75	61	136
19	81	50	131
20	80	51	131
21	75	57	132
22	71	56	127
23	76	49	125
24	75	51	126
25	70	49	119
26	71	49	120
27	74	42	116
28	69	43	112
29	75	44	119
30	69	45	114
Total :	2433	1708	4141

(ii) Mean Motor Scores : The mean motor performance scores for boys, girls and the mixed group are given with their SDs in Table A-1. The mean scores in all the three groups show continuous rise with increase in age. Curve 'A' in Graph B-1 presents the mean score growth curve of the total group Graph B-2 presents similar curves for boys and girls.

(iii) Sex Differences and Percentile Scores :

The differences in the motor performance of boys and girls were studied by applying t-tests to the observed differences in their mean scores at each month. Table A-2 gives the observed differences, their standard errors and their t-values. The table shows statistically significant differences at 7 months out of 30 months. Five significant differences are clustered during 5 to 10 months, and the remaining two are at 20 and 26 months. The table of sex differences points out another interesting phenomenon. As far as the groups under study are concerned the mean scores for girls are consistently higher for all the months from 1 to 30 months. The two observations together might be interpreted as an indication of better motor performance of girls during infancy and significantly so during the second half of the first year.

As the differences in the scores of boys and girls are consistent in the same direction the percentile scores at each month are calculated separately for boys and girls from 3rd percentile to 97th percentile, through 10th, 25th, 50th, 75th, 90th percentiles. Tables A-3 and A-4 give the calculations. Tables C-1 and C-2 give the rounded figures for practical purposes.

(iv) Deviation Motor Quotients (DMQ) :

Assuming the normal distribution of the motor scores in the total group of boys and girls at each age month the deviation motor quotient equivalents of total raw scores at each month were calculated. Following Bayley the population mean of 100 with 16 S.D. was used in calculating the equivalents. The following formula was used (Throndike and Hagen, 1961):

$$DMQ = 100 + \frac{(S-M)}{\sigma} \times 16 \quad \text{where}$$

S = Total Score; M = Observed mean, σ = observed S.D. The DMQ equivalents at each month for the various total scores are given in Table C-3. The equivalents have been calculated approximately to 2.5 to 3 standard deviations on either side of the average and cover the range of 49.1 to 147.6. Beyond the age of 26 months, the DMQ equivalents for the maximum possible score of 67, on the scale lie below + 1.7 standard deviation.

(v) Speed of Motor Development (Velocity Curve) :

The trend of motor development from month to month observed in the sample under study has been described as the speed of motor development. It is noted by studying the differences in the means of subsequent months.

The ideal sample for making the growth curve would have been a continuous longitudinal sample. In spite of planning for the longitudinal recording of the performance it was found that on an average there were 11 lapses during the period of 30 months of longitudinal study. Under the circumstances we planned to make use of only such records at two subsequent months which were of the same children e.g. in order to get the difference in the mean scores at 3 months and 4 months, means were calculated from only such records which were of the same children at the two months. This gave the related means of the same group for the two months; further to get the difference in the mean scores at 4 and 5 months similar related means were calculated. This gave us two means for the age group of 4 months based on two slightly different groups, one related to 3 months sample and the other related to 5 months sample. The differences in the related means for successive ages are noted and tested by applying t-tests for boys and girls separately. Table A-5 gives all relevent figures and graph B-3 represents the growth speed curves.

The study of the differences and the 't' values in Table A-5 show them to be statistically significant continuously upto 17 to 18 months. The observed increase suggest an ascending tendency upto 6th month for both boys and girls. Otherwise the Table and the Graph show that the increase in subsequent means decreases as the age increases and it tends to become non-significant by the age of 18 months. The tendency of slowing down the increase seems to be smoother in girls than in boys.

(vi) Difficulty order of Motor items :

The motor scale consists of 67 items. Theoretically all the items are used in measuring the total performance of a baby at any month but practically the items have developmental sequence. Arranging the items in a developmental sequence lead to important advantages. Firstly it provides information to the tester to decide where and how she should start testing a particular child and she may even make a judgement about the limits of the child's performance. Secondly, arranging the items according to difficulty order may facilitate their grouping under each month of the age. These groupings may provide sub-scales for differential diagnosis.

Bayley, has arranged the items on the basis of the age at which 50% of her sample babies would have passed them. This age for each item is described as the age placement of the item. In the present study the age placements of each item based upon a number of percentages of sample passing the item and not only 50% pass have been calculated. This might give freedom to the clinician to choose his own percentile placement for diagnosis. It must be pointed out here that none of our test records are of ill or sickly babies. For certain items, making lower and upper percentile placements was not possible, as some of them were too easy even at the age of 1 month and some were too difficulty for 30 months of age. Table A-6 gives the placements of the items in details.

For practical purpose the items are arranged for the developmental sequence on the basis of 50% sample passing the item, with the limits of placements for 3% and 97% pass. The items passed by 100% babies at one month are listed at the beginning, and are placed at 1.0- month. The items which are placed beyond one month for 97% passing the item but could not be placed for 50% passing and 3% passing on the basis of actual observation were extrapolated by using the simple rule of three for 50% pass and were placed at .1- for 3% passing the item. In applying this procedure further, the placement recorded for the percentage of passing nearest to 50% was used to calculate the placement at 50% and that recorded at the nearest to 3% was used for 3% pass placement. Such a procedure was not used at the other end of the scale. All the items which were not passed in 50% of the testings were placed for 50% and 97% pass at the month at which the highest percentage (but less than 50%) were observed to have passed it. The suffix +.was affixed to this month, indicating thereby that the item might be placed anywhere beyond that age. The scale thus arranged is given in Table C-4.

(vii) Motor Performance at each Month :

One of the major objectives of the project was to accumulate information about the growth of Indian babies for students of child development. In order to make pictures of what babies can do at various months the age placements of the items were used. All the items placed during one month, say from 3.2 to 4.1, are grouped together to describe the performance during the 4th month. Such descriptions are made at 3 levels. Items placed during any month for 97% sample passing them describe what almost all babies could do during the particular month; items placed for 50% sample passing them give the approximate scale values for the month and the items placed for 3% sample passing indicate what is possible but very rare during the month. The items thus grouped for each month where possible follow under each month with their exact placements in the brackets are given on the following pages.

Age	Almost all can do 97%	Scale 50%	Possible but rare 3%
1st Month 0.0-1.1	Lifts head at shoulder (1.0) Postural adjustment when held at shoulder (1.0) Arm thursts in play(1.0) Leg thursts in play(1.0) Lateral head movements(1.1)	Lifts head at shoulder(.5-) Postural adjustment when held at shoulder(.5-) Arm thursts in play(.5-) Leg thursts in play(.5-) Lateral head movements(.56) Turns from side to back(.62) Head erect and vertical(.67) Crawling movements(.85) Retains red ring(.89)	Lifts head at shoulder (.1-) Postural adjustment when held at shoulder (.1-) Arm thursts in play (.1-) Leg thursts in play (.1-) Lateranl head movements (.1-) Turns from side to back (.1-) Head erect and vertical (.1-) Crawling movements (.1) Retains red ring (.1-) Head erect & steady (.15) Dorsal suspension lifts head(.17) Sits with support(.3) Prone - elevates self by arms (.3) Hands predominantly open(.35) Turns from back to side (.5) Holds head steady (1.1)
2nd Month 1.2-2.1	Head erect & vertical(1.6) Crawling movements (1.7) Retains red ring (1.98)	Head erect & steady (1.49) Sits with support (1.8) Dorsal suspension lifts head(1.9) Prone elevates self by arms (1.9)	Sits with slight support(1.2) Cube - Ulner - Palmer(1.4) Head balanced (2.1)
3rd Month 2.2-3.1	Sits with support(2.9) Head erect & steady(3.1)	Holds head steady(2.2) Hands predominantly open(2.5) Sits with slight support(2.8) Cube : Ulner Palmer(2.8)	Effort to sit (2.5) Rolls from back to stomach (2.7) Pulls to sitting position(3.0)

Age	Almost all can do 97%	Scale 50%	Possible bur rare 3%
4th Month 3.2-4.1	Turns from side to back(3.4) Dorsal suspension lifts head (3.7) Holds head steady(3.7) Prone: elevates self by arms (3.9) Hands predominantly open(3.9)	Turns from back to side(3.4) Head balanced (3.5)	Rotates Wrists(3.2) Partial thumb opposition: radial-Palmer(3.3) Sits alone momentarily(3.3) Unilateral reaching (3.5) Pulls to standing position(3.7) Attempts to secure pellet(4.1)
5th Month 4.2-5.1	Sits with slight support(4.89) Cube:Ulnar Palmer(4.89) Head balanced (4.9)	Effort to sit(4.2) Partial thumb opposition radial-Palmer(4.7) Pulls to sitting position(4.9) Sits momentarily (4.9) Rotates wrists (4.97) Unilateral reaching (5.1)	Sits alone 30" or more(4.2) Early stepping movements(4.2) Sits alone steadily(5.0) Sits alone:good coordination(5.0) Complete thumb opposition radial-digital(5.0) Prewalking progression(5.1) Scoops pellet (5.1)
6th Month 5.2-6.1	Turns from back to side(5.8)	Rolls from back to stomach(5.4) Attempts to secure pellet(5.6) Sits alone 30" or more(5.7) Pulls to standing position(6.1)	Partial finger prehension(5.7) Raises self to sitting position (5.8) Combines cubes or spoons midline (5.99) Stepping movements (6.1)
7th Month 6.2-7.1	Partial thumb opposition (Radial Palmer)(6.3) Rotates wrists (6.5) Pulls to sitting position(6.9) Effort to sit (6.9) Sits alone momentarily(6.9) Unilateral reaching (6.9)	Sits alone steadily(6.2) Sits alone good coordination (6.5) Complete thumb opposition: (Radial digital)(6.5) Early stepping movements(6.6) Scoops pellet(6.6) Prewalking progression(6.9)	Stands up by furniture(6.3) Fine prehension-pellet(6.7) Pat-a-cake:Midline skill(6.7)

Age	Almost all can do 97%	Scale 50%	Possible but rare 3%
8th Month 7.2-8.1	Attempts to secure pellet(7.2)	Partial finger prehension(7.4)	Walks with help (7.6)
	Sits alone 30" or more(7.8)		Sits down (7.8)
	Sits alone steadily (7.8)		
9th Month 8.2-9.1	Complete thumb opposition radial digital (8.8)	Raises self to sitting position (8.2)	Stands alone (8.3)
	Scoops pellet (8.9)	Combines cubes or spoons midline (8.4)	Aufestehn - I (9.1)
	Pulls to standing position (8.99)	Stepping movements(8.4)	
	Early stepping movements(8.99)	Stands up by furniture(8.5)	
		Fine prehension pellet(8.6)	
10th Month 9.2-10.1	Partial finger prehension (9.2)	Pat-a-cake : Mid line skill (9.4)	Throws a ball (9.5)
	Sits alone-good coordination (9.2)	Walks with help (9.7)	Walks alone (9.8)
	Rolls from back to stomach (9.96)	Sits down (9.7)	
	Prewalking progression(9.99)		
11th Month 10.2-11.1	Stepping movements(10.7)	Stands alone (10.8)	Walks side ways (10.6)
	Fine prehension pellet(10.9)		
	Raises self to sitting position (10.98)		
	Stands up by furniture(10.99)		

Age	Almost all can do 97%	Scale 50%	Possible but rare 3%
12th Month 11.2-12.1	Combines cubes or spoons: Midline (11.95)	---	Walks backwards (11.2) Stands on right foot with help (11.9) Stands on left foot with help (11.9)
13th Month 12.2-13.1	Pat-a-cake midline skill (12.7) Sits down (12.9) Walks with help(13.0)	Aufstehn - I (12.3) Walks alone (12.5) Throws a ball (12.6)	Walks upstairs with help(12.2) Aufstehn - II (12.3) Walks downstairs with help(12.5)
14th Month 13.2-14.1	---	Walks side ways (13.4) Walks backward (14.1)	---
15th Month 14.2-15.1	---	Stands on right foot with help (14.6) Stands on left foot with help (14.7)	Tries to stand on walking board (14.2)
16th Month 15.2-16.1	Stands alone (15.9)	Walks upstairs with help(15.7)	Aufstehn III(15.5)
17th Month 16.2-17.1	Throws a ball (16.7)	Walks downstairs with help(16.5)	---
18th Month 17.2-18.1	Aufstehn - I(17.3) Walks alone (17.4) Walks sideways (17.7)	---	---

Age	Almost all can do 97%	Scale 50%	Possible but rare 3%
19th Month 18.2-19.1	---	Tries to stand on walking board(18.95)	Stands on left foot alone(18.7)
20th Month 19.2-20.1	Walks backwards (19.5) Stands on right foot with help (19.5) Stands on left foot with help(19.5)	---	Walks with one foot on board(19.2 Walks downstairs alone marks time (19.5) Stands on right foot alone(19.9) Walks upstairs alone marks time (19.96)
21st Month 20.2-21.1	---	Aufestchn II (20.4)	Stands on walking board with both feet (20.5) Jumps off floor;both feet(20.98) Walks on line general direction (21.1)
22nd Month 21.2-22.1	---	---	Walks on tip toe (21.4)
23rd Month 22.2-23.1	---	---	---
24th Month 23.2-24.1	---	Walks downstairs alone marks time (23.95)	---
25th Month 24.2-25.1	Walks upstairs with help (24.4) Walks downstairs with help (24.5)	Walks upstairs alone marks time (24.4)	Jumps from chair (24.9)

Age	Almost all can do 97%	Scale 50%	Possible but rare 3%
26th Month 25.2-26-1	---	Walks with one foot on board (26.1)	---
27th Month 26.2-27.1	---	Stands on left foot alone (26.5) Stands on right foot alone (26.6) Walks on line : general direction (26.6)	---
28th Month 27.2-28.1	---	---	---
29th Month 28.2-29.1	---	Jumps off floor : both feet (28.7)	---
30th Month 29.2-30.1	Tries to stand on walking board (29.2)	Walks on tip toe (29.5)	---

(b) Lower S-E class babies in Baroda (Urban) :

(i) Sample :

The 1090 test records of babies from lower S-E group in Baroda are confined to first fifteen months only. Table 3 gives the classification of the records according to age in months and sex.

Table 3 : CLASSIFICATION OF SAMPLE RECORDS FROM LOWER S-E GROUP FROM BARODA (URBAN) ACCORDING TO AGE IN MONTHS AND SEX

Age in months	BOYS	GIRLS	TOTAL
1	28	31	59
2	33	36	69
3	44	28	72
4	31	40	71
5	42	34	76
6	52	24	76
7	43	35	78
8	34	37	71
9	33	42	75
10	39	34	73
11	42	35	77
12	49	25	74
13	39	36	75
14	43	27	70
15	37	37	74
Total :	589	501	1090

(ii) Mean Motor Scores :

Table A-7 presents the mean motor scores with SDs for boys, girls and the total group. In all the three groups the continuous increase in the mean scores as the age increases is observed. Curve B in graph B-1 and the 2 curves in Graph B-4 represent the mean growth curves for the three groups.

(iii) Sex-differences :

Study of 't' values in Table A-8 indicates that except the three consecutive months of 5,6 and 7 the differences in the mean scores of boys and girls are non-significant. However by and large (11 out of 15) the girls' means tend to be higher than those of boys.

(iv) Motor Scores in Upper and lower S-E groups in Baroda (Urban) :

Differences in the mean scores of total groups in Tables A-1 and A-7 were compared and studied by calculating 't' values. The differences and their 't' values are given in Table A-9. The 't' values and their direction of favour suggest that the mean scores of the lower S-E group tends to be higher during the first 7 months and often significantly so. During the period of 6 to 10 or 11 months the differences become non-significant but slowly move in the direction of favouring upper S-E group. After 7th month they have higher mean scores continuously and are significantly so in many groups. Curves A and B in Graph B-1 represent the mean motor growth curves of the two groups.

(c) Rural Babies :

(i) Sample :

The test records of babies from the 27 villages (Rural areas) are 653 and cover the age range of 1-15 months. They are all of cross-sectional testings of babies coming from all S-E groups. Table 4 on the next page gives the sample at each month according to upper and lower S-E classes and sex.

(ii) Mean Motor Scores :

The mean motor scores and their standard deviations were calculated for the total group of rural babies and for the two sets of sub groups namely of boys and girls (irrespective of S-E class) and of upper and lower S-E groups (irrespective of sex). Tables A-10 and A-11 give these figures. The means of the total group increase continuously from 1 month to 15 months. However the means of the sub-groups of boys and girls in the same table and of the upper and lower S-E classes in Table A-11 show 3 discrepancies which are negligible. The discrepancies of 0.14, 0.24 and 0.03 occur in the sub-groups of boys, girls and upper class babies at 12,14,and 4 months respectively. Curve C in Graph B-1 and curves in Graphs B-5 and B-6 represent the mean growth curves of these groups.

Table 4 : CLASSIFICATION OF SAMPLE RECORDS FROM RURAL AREAS AT EACH MONTH (1-15) ACCORDING TO S-E CLASS (UPPER AND LOWER GROUPS) AND SEX.

AGE IN MONTHS	UPPER S-E CLASS (I,II & III)			LOWER S-E CLASS (IV AND V)			Total
	BOYS	GIRLS	TOTAL	BOYS	GIRLS	TOTAL	
1	2	4	6	16	16	32	38
2	9	5	14	20	17	37	51
3	11	4	15	12	25	37	52
4	2	8	10	23	18	41	51
5	8	8	16	20	13	33	49
6	5	9	14	15	15	30	44
7	14	4	18	19	14	33	51
8	12	9	21	12	17	29	50
9	8	9	17	20	14	34	51
10	17	8	25	12	9	21	46
11	13	7	20	8	6	14	34
12	10	3	13	13	9	22	35
13	13	5	18	12	16	28	46
14	6	5	11	5	9	14	25
15	12	6	18	3	9	12	30
Total :	142	94	236	210	207	417	653

(iii) Sex-differences :

Table A-12 shows that all the differences in the mean scores of boys and girls are not significant.

A critical look at the differences in the means show that the mean scores for girls are higher than those of boys except at 4th month and are lower from 7 to 15 months continuously. This is slightly different than what is observed about girls in urban areas.

(iv) S-E Class Differences :

't' values in Table A-13 show that except at 4th month the differences in the mean scores of the upper and lower S-E classes are not significant. The lower S-E groups have higher scores than the higher S-E groups at 4,5,11,13 and 14 months. At the remaining ten months upper S-E babies have slightly higher means than the lower S-E groups.

(d) Sex differences in Motor performance in the three sample groups :

In the basic study group of the urban upper S-E records mean scores of girls are continuously higher from 1-30 months (Table A-2). This has led to giving separate percentile scores for boys and girls (Tables C-1, C-2). The study of speed of growth has also been done separately for each group (Table A-5, Graph B-3). Table 5 tries to abstract the analyses presented with reference to sex-differences in the three major groups (Tables A-2, A-8 and A-12), so as to compare the differences noted in the three groups. The pattern of differences suggest the tendency of girls to score higher on total in the urban settings. Such a tendency is not observed in the rural sample. In rural areas boys tended to perform slightly better than girls (at 10 out of 15 months). The differences are not significant.

Table 5 : DIRECTION OF NOTED DIFFERENCES IN THE MEAN MOTOR SCORES OF BOYS AND GIRLS (B-G), IN UPPER AND LOWER S-E GROUPS IN BARODA(URBAN) AND IN TOTAL RURAL SAMPLE WITH SIGNIFICANCE NOTED.

AGE IN MONTHS	Urban Ur-Up (A-2)* (B-G)	Urban Ur-Lo (A-8)* (B-G)	Ru (A-12)* (B-G)
1	-	+	-
2	-	+	-
3	-	-	-
4	-	-	+
5	-	-Sig	-
6	-Sig	-Sig	-
7	-Sig	-Sig	+
8	-Sig	-	+
9	-Sig	-	+
10	-Sig	-	+
11	-	+	+
12	-	-	+
13	-	-	+
14	-	+	+
15	-	-	+

* Reference table

Sex differences in terms of relationship with environmental settings and S-E classes were looked into by comparing the mean motor scores of boys and girls from upper and lower S-E groups in Baroda and from upper S-E group in Baroda and total sample from the villages separately. Tables A-14 to A-17 give the relevant results. The pattern of direction of differences and their significance are noted from the four tables and are given in Table 6. The trend of direction and the significant differences appear to be similar as far as the comparisions of the S-E classes in Baroda are concerned.

As regards the influence of urban and rural environment the patterns of differences amongst boys and girls seem to be different. The urban girls from upper S-E class score better continuously and often significantly than rural girls after the age of 6 months. The urban upper class boys do not show such consistant and significant superiority. During the first six months boys from rural areas suggest extended significant superiority than that shown by the girls.

Table 6 : DIRECTIONS OF NOTED MOTOR MEAN SCORE DIFFERENCES AMONG BOYS AND AMONG GIRLS FROM (1) UPPER AND LOWER S-E CLASSES IN BARODA (URBAN) AND (2) URBAN UPPER CLASS (BARODA) AND RURAL AREAS

AGE IN MONTHS	(1) (UrUp-UrLo)		(2) (UrUp-Ru)	
	Boys	Girls	Boys	Girls
1	-Sig	-Sig	-Sig	-Sig
2	-Sig	-Sig	-Sig	-Sig
3	-Sig	-	-Sig	-Sig
4	-Sig	-Sig	-Sig	-
5	-Sig	-Sig	-	-
6	-	-	+Sig	+Sig
7	+	-	-Sig	+
8	+	+	-	+
9	+	+	+	+Sig
10	+	+Sig	-	+Sig
11	+	+Sig	-	+
12	+Sig	+	+	+
13	+Sig	+Sig	-	+
14	+	+	-	+Sig
15	+Sig	+Sig	-	+

(e) Environmental differences in motor performance - (Urban, rural, upper and lower S-E classes).

In order to get insight into the relationship urban rural environments and upper and lower S-E classes in motor performance of the babies, the differences in the mean scores of various total groups within and between the two environments were tested for statistical significance by applying 't' tests. The patterns of significant differences observed in various groups are studied.

(i) Urban and rural upper S-E groups :

Table A-18 shows that out of 15 comparisions of upper S-E groups from urban and rural areas, only 3 are statistically significant but they are consecutive at the first three months. At these three months the rural babies have higher mean scores. Amongst the not significant differences there are three more at 5,7 and 8 months which are in favour of rural babies. The remaining 8 comparisions though not-significant are in favour of urban babies. The range of not significant differences is -1.20 (Ur-Ru) to + 1.33. The observations may be interpreted as indicating significant environmental influence in favour of the rural ones during the first 3 months and may be slightly so upto 7 months, as far as the upper S-E, classes are concerned.

(ii) Urban (Baroda) upper S-E group and rural total group (all S-E classes) :

It has been already noted in Table A-13 that the differences in the means of upper and lower S-E classes from the rural areas are not significant. Hence the performance of the total rural group coming from all the classes is compared with the performance of the upper S-E class babies from Baroda.

Table A-19 gives mean score comparision between the urban upper S-E class babies and rural babies of all S-E classes. The significant differences continue to occur during the first three months in favour of rural babies with slightly higher 't' values than those noted for rural upper S-E class only (in Table A-18). The difference at 6 months is in favour of urban upper S-E class and the 't' value indicates statistical significance. With rural upper S-E class only the difference is in the similar direction but statistically not significant. Beyond the age of 7 months all differences are in favour of urban upper S-E class babies though statistically not significant.

(iii) Urban and rural lower S-E groups :

In Table A-7 it has been noted that the differences in the mean scores of upper and lower S-E classes in Baroda (Urban) are significant. They appeared to be more conspicuous than the differences in the upper lower S-E classes in rural areas (A-13) or upper S-E group differences in urban and rural settings (A-18). Hence the mean scores of lower S-E groups from Baroda and the rural areas are compared. Table A-20 shows that the differences in the means are not significant except at 3 and 6 months. Out of the two months of significant differences the rural babies have scored higher at 3rd month of age while urban babies do so at 6th month of age. The not significant differences are in favour of rural groups of 3,7,11,13 and 15 months. In the remaining 10 groups the urban babies score more on averages.

(iv) Patterns of environmental differences :

Table 7 attempts to facilitate a comparative look at the patterns of differences and their significance at different ages observed in various comparisions. This has been done by noting the direction of the observed differences and significance of 't' values.

Table 7 : DIRECTION OF OBSERVED DIFFERENCES IN THE MEAN MOTOR SCORES OF URBAN AND RURAL RECORDS OF UPPER AND LOWER S-E CLASSES WITH SIGNIFICANCE MENTIONED.

AGE IN MONTHS	UrUp-UrLo	RuUp-RuLo	UrUp-RuUp	UrUp-Ru	UrLo-RuLo
1	-Sig	+	-Sig	-Sig	+
2	-Sig	+	-Sig	-Sig	+
3	-Sig	+	-Sig	-Sig	-Sig
4	-Sig	-Sig	+	-	+
5	-Sig	-	-	-	+
6	-	+	+	+Sig	+Sig
7	-	+	-	-	-
8	+	+	-	+	+
9	+	+	+	+	+
10	+Sig	+	+	+	+
11	+Sig	-	+	+	-
12	+Sig	+	+	+	+
13	+Sig	-	+	+	-
14	+	-	+	+	+
15	+Sig	+	+	+	-

The comparative study suggests that at least as far as the present groups under study are concerned, they appear to form two groups as follows :-

(1) Upper S-E class from Baroda (urban) and

(2) Lower S-E class from Baroda (urban) and upper and lower S-E classes from the rural areas.

As regards the pattern of differences it may be generalised that upto about 7th month the second group tends to score more on average and after 7th month the first group starts scoring more than the first group.

Within the 2nd group no such pattern is observed but the tendency of scoring more by upper S-E class in rural areas and of urban babies from lower S-E groups may be noted.

V - MENTAL PERFORMANCE OF INDIAN BABIES

(a) Upper S-E Class babies

(i) Mean Mental Performance :

Table A-21 which gives the mean mental scores of boys, girls and the total group clearly show the increase in the mean mental scores at each successive age in all the three groups. Curve 'D' in Graph B-7 and the curves in Graph B-8 represent the mean mental growth curves of the three groups.

(ii) Sex differences and percentile scores :

Differences in the mental performance of boys and girls at each age month with their 't' values given in Table A-22 show significant differences at 3,5,7,9, 10,15,16 and 18 months. After 18 months all the differences are statistically insignificant. However, the table shows all negative differences indicating higher means for girls. The significant differences clustering during the first 18 months may be interpreted as suggesting girls superiority specially for this period. The percentile scores based upon the means for boys and girls given in Table A-21 were calculated for 3rd, 10th, 25th, 50th, 75th, 90th and 97th percentiles and are given in Tables A-23 and A-24 for boys and girls respectively. The rounded scores for these percentiles are given in Tables C-5 and C-6.

(iii) Deviation Mental Quotients (DMEQ)

The deviation mental quotients at different months were calculated by making use of the estimate of total population (boys and girls) mean and S.D. at each month and transferring them to 100 mean and 16 S.D. The same formula used for calculating DMQ was used. DMEQ thus calculated are given in Table C-7. The DMEQs have been calculated to cover the range of 2.5 to 3 standard deviations on both sides of the mean. It may be pointed out that beyond 25 months the maximum possible score of 163 in the scale lies at position between +1.0 to + 1.5 standard deviation for ages beyond 25 months.

(iv) Speed of Mental Development (Velocity curve) :

The related samples were used in studying the increase in the mean mental score performance from month to month. The means, the differences, in the successive means and their 't' values are given in Table A-25.

A comparative look at the differences between successive pairs and their 't' values show that most of the 't' values are statistically significant. However they tend to decrease as the ages compared increase especially after about 6 months of age. This tendency is observed in both the groups. Graph B-9 gives the mental growth speed curves of boys and girls.

(v) Difficulty Order of Mental Items :

The age placements of the hundred and sixty three mental items for different percentages of children passing each item were calculated by using the observed percentages of children passing each one of them at various months. Table A-26 gives the calculated placements for 3,5,10,20,30,40,50,60,70, 80,90,95 and 97 percent sample passing each item. Age placement for 50% sample passing the item was used in rearranging the scale in difficulty order. The placements of the items which could not be determined statistically for 3,50 or/and 97 percent passing level were decided in the same manner as that followed for motor items. Table C-8 gives the items arranged for 50% pass age with limits for 3% pass age and 97% pass age written in brackets.

(vi) Mental Performance at each month :

Following the same procedure as used for describing the motor performance at each month mental performance during each month for three levels, namely what almost all can do, approximate scale and what is possible but rare is given on the following pages. The exact placements of the items are mentioned in the bracket at the end of each item.

	What almost all can do 97%	Scale 50%	Rare but possible 3%
Ist month 0.0-1.1	Regards a person momentarily (1.0) Responds to sound of bell (1.0) Momentary regard of red ring (1.0) Quiets when picked up(1.0) Responds to sound of rattle (1.0) Prolonged regard of red ring (1.0) Response to voice (1.0) Responds to sound: light switch (1.1)	Regards a person momentarily (.5) Responds to sound of bell (.5) Momentary regard of red ring (.5) Quiets when picked up(.5) Responds to sound of rattle (.5) Prolonged regard of red ring (.5) Response to voice (.5) Responds to sound light switch (.56) Horizontal eye coordination: red ring(.7) Follows moving person(.7) Vocalizes once or twice(.8) Free inspection of surroundings(.8) **Circular eye coordination: ring(.8)** **Horizontal eye coordination : light(.96)** **Vertical eye coordination: light (1.1)**	Regards a person momentarily (.1-) Responds to sound of bell (.1-) Momentary regard of red ring (.1-) Quiets when picked up (.1-) Responds to sound of rattle (.1-) Prolonged regard of red ring (.1-) Responds to voice(.1-) Responds to sound : light switch (.1-) Horizontal eye coordination: red ring (.1-) Follows a moving person(.1-) Vocalizes once or twice(.1-) Inspection of surroundings : (.1-) Vertical eye coordination: red ring (.1-) Horizontal eye-coordination: light (.1-) Circular eye coordination : ring (.1-) Vertical eye coordinatior : light (.1-) Turns eyes to red-ring(.1-) Circular eye coordination: light (.1-)

	What almost all can do 97%	Scale 50%	Rare but possible 3%
			Social smile, E talks and smiles (.1) Vocalizes more than 3 times(.1) Anticipatory excitement (.15) Reacts to paper on face (.2) Turns eyes to light (.2) Searches with eyes for sound(.6) Blinks at shadow of hand (.6) Social smile : E smiles, quiet(1.0) Visually recognizes mother (1.1) Vocalizes to E's social smile and talks (1.1) Vocalizes 2 syllables (1.1) Eyes follow pencil (1.1) Reacts to disappearance of face(1.1)
2nd Month 1.1-2.1	Horizontal eye coordination: red ring (1.4) Follows moving person (1.6) Vacalizes once or twice (1.9) Free inspection of the surroundings (1.9)	Turns eyes to red ring(1.3) Vertical eye coordination: Red ring (1.3) Circular eye coordination light (1.4) Social smile : E talks and smiles (1.4) Vocalizes more than 3 times (1.4) Anticipatory excitement (1.5) Reacts to paper on face(1.5) Searches with eyes for sound (1.7) Social smile E smiles, quiet (1.7) Turns eyes to light (1.9) Vocalizes to E's social smile & talk (2.0)	Anticipatory adjustment to being lifted (1.2) Reaches for dangling ring(1.2) Glances from one object to another (1.3) Manipulates red ring (1.5) Regards cube (1.5) Fingers hand in play (1.5) Simple play with rattle (1.8) Follows vanishing ring dangling(2.0) Aware of strange situation(2.1) Follows vanishing spoon (2.1) Eyes follow ball accross table(2.1) Carries ring to month(2.1)

	Almost all can do 97%	Scale 50%	Possible but rare 3%
3rd Month 2.2-3.1	Vertical eye coord : red ring (2.4) Social smile E talks and smiles (2.7) Circular eye coord: light (2.8) Horizontal eye coord: light (2.[illegible]) [illegible] ring(2.8) Antic[illegible]ement(2.8) Reacts to paper on face(2.8) Vertical eye coord: light(2.9) Vocalizes more than 3 times (2.9) Circular eye coord : light(3.0)	Vocalizes 2 syllables(2.2) Visually recognises mother(2.3) Anticipatory adjustment to being lifted (2.5) Reacts to disappearance of face (2.5) Blinks at shadow of hand(2.6) Eyes follow pencil(2.6) Regards cube (2.6) Manipulates red ring (2.8) Glances from one object to another (2.8) Reaches for dangling ring (2.8) Simple play with rattle(2.9) Fingers hands in play(2.9) Follows vanishing ring (dangling)(3.0)	Manipulates table edge slightly (2.2) Inspects own hands (2.2) Closes on dangling ring(2.9) Turns head to sound of bell(3.0) Turns head to sound of rattle(3.0) Mirror image approach(3.0) Reaches for cube (3.1) Active table manipulation(3.1) Eye cooperation in reaching(3.1) Exploitive paper play(3.1) Retains two cubes placed in hands (3.1) Vocalizes attitude (3.1)
4th Month 3.2-4.1	Social smile - E smiles quiet (3.3) Searches with eyes for sound (3.6) Vocalizes to E social smiles and talk (3.7) Anticipatory adjustment to beinf lifted (3.7) Visually recognises mother (3.8) Turns eyes to light (3.9)	Follows vanishing spoon(3.2) Aware of strange situation(3.4) Eyes follow ball across table (3.5) Carries ring to mouth(3.5) Manipulates table edge slightly(3.5) Inspects own hands (3.5) Turns head to sound of bell(3.8) Turns head to sound of rattle (3.9) Closes on dangling ring(4.1)	Regards pellet (3.2) Picks up cube (3.3) Likes frolic play(3.3) Discriminates strangers (3.4) Turns head after fallen spoon(3.4) Recovers rattle in the crib(3.6) Reaches persistantly (3.6) Smiles at mirror image(3.7) Sustained inspection of ring(3.9) Exploitive string play(4.1) Interest in sound production(4.1) Lifts cup (4.0) Reaches for 2nd cube (4.1) Transfers object hand to hand(4.1) Bangs in play (4.1)

	Almost all can do 97%	Scale 50%	Possible but rare 3%
	Blinks at shadow of the hand (3.9) Regards cube (3.9) Eyes follow pencil(3.9) Manipulates red ring(4.1) Glances from one object to another(4.1)		
5th Month 4.2-5.1	Reacts to disappearance of face (4.5) Simple play with rattle (4.7) Fingers hand in play(4.7) Follows vanishing ring (Dangling)(4.7) Reaches for dangling ring (4.9) Aware of strange situation (4.9) Follows vanishing spoon(4.9) Eyes follow ball across table (4.9) Manipulates table edge slightly(4.9)	Reaches for cube(4.4) Mirror image app[illegible] Active table manipulation(4.[illegible]) Exploitive paper play(4.[illegible]) Eye cooperation in reaching (4.5) Regards pellet (4.6) Vocalizes attitudes(4.6) Likes frolic play(4.8) Retains two cubes(4.8) Picks up cube (4.9) Discriminates strangers(4.9) Turns head after fallen spoon(5.0) Sustained inspection of ring (5.0) Recovers rattle,in crib(5.1)	[illegible] (4.2) [illegible] with [illegible] (4.2) Retains two of three cubes offered(4.4) Looks for fallen spoon(4.5) Playful response to mirror(4.6) Pulls string:Secures ring(4.8) Attends to scribbling(5.0) Vocalizes 4 different syllables (5.0) Manipulates bell: interest in details(5.0) Listens selectively to familiar words(5.1)
6th Month 5.2-6.1	Carries ring to mouth(5.3) Turns head to sound of rattle(5.7) Closes on dangling ring(5.8) Turns head to sound of bell(5.8) Mirror image approach(5.9)	Reaches persistently(5.2) Lifts cup (5.3) Reaches for second cube(5.5) Exploitive string play(5.5) Transfers object hand to hand (5.5) Smiles at mirror image(5.6)	Cooperates in games (5.[illegible]) Attempts to secure 3 cubes(5.[illegible]) Pulls string adaptively: secures ring(5.[illegible]) Says Da-Da or equivalent(5.[illegible]) Uncovers toy(6.0) Adjusts to words(6.1)

	Almost all can do 97%	Scale 50%	Possible but rare 3%
	Exploitive paper play(5.9) Reaches for cube(5.96) Inspects own hands (6.0)	Bangs in play(5.6) Interest in sound production (5.6) Picks up cube deftly and directly(5.7) Lifts cup with handle(5.8) Pulls string secures ring(5.9) Looks for fallen spoon(5.99) Retains two of three cubes offered (6.1)	Rings bell purposively(6.0)
7th Month 6.2-7.1	Eye cooperation in reaching (6.2) Active table manipulation(6.3) Regards pellet(6.5) Picks up cube (6.5) Sustained inspection of ring (6.7) Turns head after fallen spoon (6.3) Lifts cup (6.8) Discriminates strangers(6.9) Vocalizes attitudes(6.9) Reaches persistantly(6.9) Reaches for second cube(6.9) Recovers rattle, in crib(6.95) Likes frolic play(7.0) Bangs in play (7.0) Picks up cube deftly and directly(6.98) Retains 2 cubes (7.0) Transfers object hand to hand (7.0)	Playful response to mirror(6.3) Attends to scribbling(6.5) Manipulates bell : interest in details(6.5) Cooperates in games(6.9) Vocalizes 4 different syllables (7.1) Pulls string adaptively : secures ring (7.1) Listens selectively to familiar words (7.1)	Fingers holes in peg board(7.1) Picks up cup-secures cube(7.1)

	Almost all can do 97%	Scale 50%	Possible but rare 3%
8th Month 7.2-8.1	Exploitive string play(7.2) Smiles at mirror image(7.4) Interest in sound production (7.5) Looks for fallen spoon(7.7) Pulls string: Secures ring(7.9)	Attempts to secure 3 cubes(7.4) Uncovers toy(7.5) Rings bell purposively(7.7)	Puts cube in cup on command(7.3) Inhibits on command(7.3) Looks for contents of box(7.7)
9th Month 8.2-9.1	Manipulates bell interest in details(8.4) Retains 2 of 3 cubes offered (8.6) Lifts cup with handle (8.8) Attends to scribble(8.9) Listens selectively familiar words (9.0)	Adjusts to words(8.3) Fingers holes in peg board (8.9) Says -da-da equivalent(8.98) Picks up cup: secures cube(9.0)	Stirs with spoon in imitation(8.[illegible]) Repeats performance laughed at(8.2) Looks at pictures in book(8.2) Unwraps cube (8.3) Uses expressive jargon(8.6) Dangles ring by string(8.6) Holds crayon adaptively(8.9) Pushes car along (8.9) Attempts to imitate scribble(9.0) Turns pages of book(9.1)
10th Month 9.2-10.1	Playful response to mirror(9.2) Pulls string adaptively (9.4) Uncovers toy(9.6) Vocalizes 4 different syllables(9.7) Cooperates in games(9.9) Attempts to secure 3 cubes(9.9)	Inhibits on command(9.7) Looks at pictures in book(9.9) Looks for contents of box(9.97)	Imitates words (9.2) Uncovers square box(9.3) 3 or more blocks in cup(9.3) Pats whistle doll immitation(9.3)

	Almost all can do 97%	Scale 50%	Possible but rare 3%
11th Month 10.2-11.1	Rings bell purposively (10.7)	Puts cube in cup on command(10.2) Stirs with spoon in immitation(10.2) Repeats performance laughed at (10.5) Unwraps cube (10.6) Uses expressive jargon(10.7) Holds crayon adaptively(10.8) Attempts to imitate scribble (10.9) Turns pages of book(10.98) Dangles ring by string (11.1)	Puts beads in box(6 of 8)(10.3) Spontaneous scribble(10.6) Removes pellet from bottle(10.7) Places one peg repeatedly(11.0) Builds tower of two cubes(11.0) Adjusts round block in 3 hole board (11.1) Closes round box (11.1) Uses gestures to make wants known(11.1)
12th Month 11.2-12.1	Adjusts to words(11.7) Says da-da or equivalent(11.9) Looks for content of box (11.99) Looks at pictures in book (12.1)	Pushes car along (11.3) Imitates words (11.9) 3 or more blocks in cup(11.9) Pats whistle doll in imitation(12.0) Uncovers square box(12.1)	Says two words (11.2) Shows shoes, or other clothing or own toy(11.4) One round block in Bayley board(12.0) Attains toy with stick (12.0)
13th Month 12.2-13.1	Fingers holes in peg board (12.2) Picks up cup, secures cube (12.2) Inhibits on command (12.6) Stirs with spoon in immitation(12.8) Puts cube in cup on command (12.8)	Puts beads in box(6 of 8)(12.5) Spontaneous scribble (13.1) Removes pellet from bottle(13.1)	Uses words to make wants known (12.6) Builds tower of 3 cubes (12.7)

	Almost all can do 97%	Scale 50%	Possible but rare 3%
14th Month 13.2-14.1	Attempts to immitate scribble (13.5) Unwraps cube (13.6) Uses expressive jargon(13.6) Repeats performance laughed at (13.7) Holds crayon adaptively(13.8) Turns pages of book(13.9)	Closes round box(13.3) Places one peg repeatedly (13.4) Uses gestures to make wants known (13.67) Builds tower of 2 cubes(13.71) Says two words (14.1) Shows shoes or other clothing or own toy(14.1)	Two round blocks in blue board(13.2) Names one object(13.5) Imitates a stroke (13.5) Pink form board: places round block(13.7) Pegs placed in 70 seconds(13.99)
15th Month 14.2-15.1	Pushes car along (14.6) 3 or more blocks in cup(14.7) Uncovers square box(14.97)	One round block in Bayley board (14.9) Adjusts round block in 3 hole board (15.1)	Follows directions: doll(14.4) Pegs placed in 42" (14.8)
16th Month 15.2-16.1	Puts beads in box (6 of 8) (15.5) Dangles ring by string(15.6) Immitates words (15.7) Places one peg repeatedly (15.95) Closes round box(15.98)	Attains toy with stick(15.3)	Names 1 picture (15.2) Points parts doll (15.3) Blue board, also 2 squares (15.4) Pink form board completes(15.8) Blue boards places 6 blocks(15.8) Sentence of two words (15.8) Names 2 objects (16.0) Mends broken doll marginally(16.1) Differentiates scribble from stroke (16.1)

	Almost all can do 97%	Scale 50%	Possible but rare 3%
17th Month 16.2-17.1	Removes pellet from bottle (16.4) Spontaneous scribble(16.5) Pats whistle doll imitation (16.9) Builds tower of 2 cubes(16.99)	Builds tower of 3 cubes(16.2) Imitates a stroke(16.4) Pegs placed in 70"(16.5) Pink form board : places round block (16.8) Two round blocks in blue board(17.1)	Points to 3 pictures (16.3) Selects box containing kitty(16.4) Names 3 objects (16.5) Pegs placed in 30" (16.7) Mends broken doll approximately, (16.8) Builds tower of 6 cubes (16.8) Points to 5 pictures(17.1)
18th Month 17.2-18.1	1 round block in Gayley board (17.9) Adjusts round block in 3 hole form board(17.9)	Uses words to make wants known (17.5) Follows directions: doll(17.96)	Names watch 4th picture (17.4) Discriminates between cup and plate (17.6) Discriminates cup, plate box (17.8) Names watch - second picture(18.0)
19th Month 18.2-19.1	Uses gestures to make wants known (18.2) Shows shoes or other clothing or own toy(18.8) Says two words (19.1)	Pegs placed in 42 seconds(18.2) Blue board, also two squares(18.6)	Names 3 pictures (18.2) Completes blue board in 150 seconds (18.2) Completes blue board in 90 seconds (18.5) Mends broken doll exactly(18.97) Pink form board - reversed(18.98) Train of cubes (18.97) Understands 2 propositions(18.97) Names 5 pictures (18.98)
20th Month 19.2-20.1	Pegs : placed in 70"(19.9)	Points to parts of doll(19.2)	Folds paper (19.2) Completes blue board in 60" (19.3) Understands 3 prepositions(19.5) Pegs: placed in 22" (19.9) Imitates strokes - vertical and horizontal(19.9) Points to 7 pictures (19.98)

	Almost all can do 97%	Scale 50%	Possible but rare 3%
21st Month 20.2-21.1	----	Names one object (20.4) Blue board : Places 6 blocks (20.8) Differentiates a scribble and a stroke (20.8) Pink form board : completes (20.9) Selects box containing kitty (21.0)	Concept of one (20.3)
22nd Month 21.2-22.1	Attains toy with stick(21.6) Two round blocks in blue board(21.9)	Sentence of two words(21.2) Names one picture(21.3) Peg : Places in 30"(21.4)	----
23rd Month 22.2-23.1	Builds tower of 3 cubes(22.2) Imitates a stroke (22.2) Peg board places in 42"(23.1)	Discriminates between cup and plate (22.3) Points to 3 pictures(22.6) Names two objects(22.8) Discriminates cup, plate and box(22.9)	----
24th Month 23.2-24.1	Blue board, also two squares(23.8)	Mends broken doll marginally(23.5) Train of cubes (23.8) Completes blue board: in 150" (23.8) Names 3 objects(24.1)	-----

	Almost all can do 97%	Scale. 50%	Possible but rare 3%
25th Month 24.2-25.1	Points to parts of doll(24.3) Pink form board:places round block(24.4) Follows directions: doll(24.5) Uses words to make wants known(24.8)	Pink form board: Reversed(24.3) Completes blue board: in 90"(24.3) Names watch 4th picture(24.4) Points to 5 picture (24.5) Names 3 pictures(24.5) Names watch - 2nd picture(24.8) Completes blue board : in 60"(24.9) Folds paper (24.97)	----
26th Month 25.2-26.1	Blue board : places 6 blocks (25.7) Selects box containing kitty(25.7)	Imitates strokes; vertical and horizontal (25.2) Understands two prepositions(25.7) Builds tower of 6 cubes(26.1)	
27th Month 26.2-27.1	Names one object (26.3) Names one picture (26.7) Differentiates a scribble from stroke (26.7) Discriminates between cup and plate (26.9)	Mends broken doll - Approximately (26.4) Names 5 pictures (27.1) Understands 3 prepositions(27.1)	Tower of 8 cubes(26.9)
28th Month 27.2-28.1	Pink form board : complete (27.2)	Points to 7 pictures (27.5) Concept of one (27.7)	----
29th Month 28.2-29.1	Train of cubes (28.3) Sentence of two words (28.8)	Pegs: places in 22" (29.0)	----
30th Month 29.2-30.1	Pegs : places in 30" (29.5)	----	----

(b) Lower S-E class babies in Baroda (Urban)

(i) Mean Mental Scores :

Table A-27 gives the mean mental scores with their standard deviation for the total group and the two sub-groups of boys and girls from the lower S-E group in Baroda (Urban). The records cover the first 15 months of life. A glance through the mean scores point out the continuous increase as the age increases in all the three groups. Curve E in Graph B-7 and curves in Graph B-10 represent the mean mental growth in the three groups.

(ii) Sex differences :

The differences in the mean mental scores of boys and girls at each month and their 't' values are given in Table A-28. All the values in the Table A-28 are not significant indicating no differences in the performance of boys and girls. The directional study of the not significant differences do not also suggest any differential tendency. Out of 15 differences 9 are in favour of girls and 6 are in favour of boys. However, the range of these differences is only -0.90 to +0.87.

(iii) Mental Scores in Upper and Lower S-E Classes Baroda (Urban) :

The 't' values of the differences in the mean scores of the two S-E class groups are presented in Table A-29. The means are given in Tables A-21 and A-27. Most of the differences, 11 out of 15, are statistically significant and except at the first two months the upper S-E class records have higher means. The four **not** significant differences are similarly directed. Curves D and E in Graph B-7 represent the mean mental growth curves of the two groups.

(c) Rural Babies :

(i) Mean Mental Scores :

Table A-30 gives the details of mean mental scores with their SDs for the total group of babies from rural settings and of the sub-groups of boys and girls. Table A-31 presents the mean mental scores for two sub groups based on S-E class irrespective of sex. As seen in the two tables the mean scores at successive ages continuously increase except at one place; the boys mean score at 14 months is less than their mean score at 13 months by 1.46 Curve 'F' in Graph B-7 and Graphs B-11 and B-12 give the mean mental growth curves of the five groups.

(ii) Sex-Differences :

Table A-32 gives the differences in the mean scores of boys and girls at each month with their t-values. The difference is significant only at 13th month and at this month the mean score of boys is higher than that of girls. Besides at 13th month, the mean scores of boys are higher than those of girls for 9 months viz. 3, 6 to 12 and 15. Though the differences are not significant, it is interesting to note that girls have scored higher for the first five montns except at 3rd month and from then onwards they show a tendency of scoring less than the boys.

(iii) S-E class differences :

The differences in the mean mental scores of the upper and lower S-E groups from rural areas with their 't' values are given in Table A-33. None of the 't' values are statistically significant. However it is interesting to note that mean scores of the upper class babies are higher than the mean scores of the lower class babies except at 4th and 9th months.

(d) Sex differences in mental performance in the three sample groups :

The girls on average have continuously scored higher than the boys from 1-30 months in the urban upper S-E groups (Table A-22). Hence separate percentile scores and the two mental growth speed curves (Graph B-9, Tables C-5 and C-6) are made for boys and girls. Table 8 tries to abstract the tendencies of sex differences observed in the three major groups under study. This has been done by presenting the direction of noted differences (B-G) and whether they are significant.

Table 8 : DIRECTION OF NOTED DIFFERENCES IN THE MENTAL MEAN SCORES OF BOYS AND GIRLS (B-G) IN UPPER AND LOWER S-E GROUP IN BARODA (URBAN) AND IN TOTAL RURAL GROUP WITH SIGNIFICANCE NOTED

Age in Months	UrUp (A-22)*	UrLo (A-28)*	Ru (A-32)*
1	-	-	-
2	-	-	-
3	-Sig	-	+
4	-	-	-
5	-Sig	-	-
6	-	+	+
7	-Sig	-	+
8	-	+	+
9	-Sig	+	+
10	-Sig	-	+
11	-	+	+
12	-	-	+
13	-	+	+Sig
14	-	+	-
15	-Sig	-	+

* Reference Tables

The table suggests that girls tend to be superior in the urban upper S-E class, all throughout the period (1-15 months) but tend to be so in lower S-E group in Baroda (Urban) only upto 6 months and that two not significantly so. In the rural sample sex differences are not significant but by and large in favour of boys.

Environmental influences in the mental performance of boys and girls noted in Tables A-34 to A-37 were studied for the pattern of differences based upon the direction and significance of observed differences. Table 9 gives the relevant observations.

Table 9 : DIRECTION OF NOTED MENTAL MEAN SCORE DIFFERENCES AMONG BOYS AND AMONG GIRLS FROM (i) UPPER AND LOWER S-E CLASSES IN BARODA (URBAN) AND (ii) URBAN UPPER CLASS (BARODA) AND RURAL AREAS.

Age in Months	UrUp - UrLo		UrUp - Ru	
	Boys (A-21,A-27)*	Girls (A-21,A-27)*	Boys (A-21,A-30)*	Girls (A-21,A-30)*
1	-Sig	-Sig	-	-
2	-Sig	-	+Sig	+
3	+	+Sig	+	+Sig
4	+Sig	+	+Sig	+Sig
5	+	+	+Sig	+Sig
6	+	+Sig	+Sig	+Sig
7	+Sig	+Sig	+	+Sig
8	+Sig	+Sig	+Sig	+Sig
9	+	+	+	+Sig
10	+	+Sig	+	+Sig
11	+	+Sig	+	+Sig
12	+	+	+	+
13	+Sig	+Sig	+	+Sig
14	+Sig	+Sig	+Sig	+Sig
15	+Sig	+Sig	+Sig	+Sig

* Reference Table

Table 9 suggests that the girls from the upper S-E class in Baroda tend to show significant superiority over girls from lower S-E groups from Baroda as well as over girls from rural areas as compared to the similar tendency of superiority shown by boys.

(e) Environmental differences in mental performance (Urban Rural, upper and lower S-E classes) :

(i) Urban and rural upper S-E groups :

Table A-38 gives the 't' values of differences in the mental mean scores of upper S-E class babies from urban and rural areas. All the differences except at first month are in favour of urban babies and often they are statistically significant. Majority of the significant differences cluster during the period of 4 to 10 months.

(ii) Urban (Baroda) upper S-E group and rural total group (all S-E classes) :

Table A-31 shows all not significant differences in the mean mental scores of upper and lower S-E classes in the rural sample. Hence the comparision of the means of the urban upper S-E class and the rural all classes was undertaken. Table A-39 gives the 't' values and the differences. The significance of the differences seems to have been enhanced by the addition of lower S-E group in rural sample by being extended to more months. In place of 8 significant differences noted in Table A-38, Table 39 records 13 significant differences.

(iii) Urban and rural lower S-E groups :

In Table A-29 it is noted that the differences in the mean scores of upper and lower S-E groups in Baroda are significant at 11 months and they are in favour of upper S-E class. In Table A-39 the means of the total rural population are significantly different in favour of urban upper S-E class. Upper and lower S-E groups in the rural sample do not show significant differences (Table A-33). The comparisions of the mental means of the babies from lower S-E classes from Baroda (Urban) and Rural areas are given in Table 40. All the means of the urban lower S-E class babies are higher than the means of the rural lower S-E class babies, but they are significant at 1,2,4,5,6 and 14 months only, perhaps indicating similar performance of the babies beyond 6 months.

(iv) Patterns of differences :

Table 10 is prepared to facilitate a comparative look at the patterns of the direction of differences and their significance in the various comparisions.

Table 10 : DIRECTION OF NOTED DIFFERENCES IN MEAN MENTAL SCORES OF URBAN AND RURAL BABIES OF UPPER AND LOWER CLASSES WITH SIGNIFICANCE NOTED

Age in Months	UrUp-UrLo (A-29)*	RuUp-RuLo (A-33)*	UrUp-RuUp (A-38)*	UrLo-RuLo (A-40)*	UrUp-Ru (A-39)*
1	-Sig	+	-	+Sig	-
2	-Sig	+	+	+Sig	+Sig
3	+Sig	+	+	+	+Sig
4	+Sig	-	+Sig	+Sig	+Sig
5	+	+	+Sig	+Sig	+Sig
6	+	+	+Sig	+Sig	+Sig
7	+Sig	+	+	-	+Sig
8	+Sig	+	+Sig	+	+Sig
9	+	-	+Sig	+	+Sig
10	+Sig	+	+Sig	+	+
11	+	+	+	+	+
12	+Sig	+	+	+	+Sig
13	+Sig	+	+	+	+Sig
14	+Sig	+	+Sig	+Sig	+Sig
15	+Sig	+	+Sig	+	+Sig

* Reference Tables.

The incidence and spread of significant differences suggest 3 groups of the sample under study. They are -

i) Upper S-E class in Baroda (Urban)

ii) Lower S-E class in Baroda (Urban)

iii) Rural all classes.

The upper S-E class babies seem to have better performance except at first 1 or 2 months, than the remaining two groups. The comparision of the lower S-E classes of urban and rural areas suggest the significant superiority of urban babies during the first six months while during the latter period the differences are not significant. The shift to not significant differences might have been brought about by variability in the performance of both the groups or in any one of the groups.

VI - COMPARISON OF MOTOR AND MENTAL PERFORMANCE OF INDIAN BABIES AND BABIES IN OTHER COUNTRIES

(a) Sources of Information :

Bayley Scales (Research Form - 1961a, 1961b and 1965) have been tentatively standardised and provide information about total mean scores, their standard deviations, standard scores, **DMQs** and IQs for the first 15 months for motor scale and for 1-30 months for the mental scale.

Both motor and mental scales are arranged in difficulty order and each item has been placed at some age. The age placements of the first 46 items in the motor scale are based upon the testings approximately equal number of babies at each month from 1-15, making a total of 996 babies. The placements of the items from 47 to 67 are carried further from the prior forms. In the mental scales items 1 to 115 are placed on the basis of the performance of 1000 babies, approximately equal at each month from 1-15 months. Items from 116 to 129 are tentatively placed during 15 to 19 months and the placements of the remaining items seem to have been carried over from the previous forms.

Bayley Scales (Research form - 1961) has been used in studying motor and mental development of babies in U.K. and Israel by Jessie Frances Williams, W.Yule (1967) and Reuven Kohen - Raz (1968) respectively.

Jessie Francis - Williams and William Yule have administered the Bayley Scales (1961 Revision) to 300 babies, most of whom (less 14 who were of friends and colleagues) were attending such Maternity and Child Welfare Centres where psychologists were based. All these babies had a clear birth history. The babies were tested by the psychologists within a day or two of the month's birth date. They were tested either at home or at the Maternity and Child Welfare Centres. The 300 babies formed neat samples of 10 boys and 10 girls at each month from 1 to 15 months. The babies belong to all S-E classes (I to V) based on fathers' occupation. Besides the total mean scores of the mixed group the study presents sex differences as observed in the samples. Relationship between scale scores and socio-economic classes and family compositions have been studied. The scales have been also tested for validity, reliability and item difficulty order.

Reuven Kohen - Raz and his colleagues have presented the study of environmental differences in motor and mental development of babies on Bayley Scales (Research form 1961). His samples are taken from three environments, namely Kibbutz, private homes and infant institutions. The report covers the total mean score comparisions within the three Israel groups and with U.S.A. mean scores reported by Bayley (1965). All the comparisions are made separately for boys and girls. The relationship between the different environments and the family backgrounds are studied and discussed.

(b) Comparisons of mean scores (motor and mental) :

In comparing the mean scores of Baroda babies and babies from other countries the means of mixed groups of boys and girls are used. In case of babies from Israel, where only the separate means for boys and girls were reported it was felt appropriate to use the boys' sample from private homes. Tables A-41 and A-42 reproduce the motor and mental means and SDs from various groups, respectively. Graphs B-13 and B-14 give the mean curves and standard deviation curves of the six groups on motor and mental scales respectively.

Critical ratios were calculated for the differences in the means of U.S.A. babies and the upper S-E class babies in Baroda. This study could be done for the first fifteen months only. Table A-43 gives the relevant figures of calculations. Most of the differences on motor scale and all differences on the mental scales are statistically significant.

In order to get a picture of relative standing of babies in various groups at different months they were ranked in order of the total means. Table 11 (next page) presents the ranks obtained by various groups at each month under study. The critical study of the tables may lead to following for tentative observations.

(1) The Baroda babies of both the S-E groups tend to perform better than the babies in the U.S.A. sample on both the motor and mental scales upto first fifteen months. The upper S-E group babies continue to remain so on mental scale, practically all through out the period. As regards their standing on motor scale they are lower than U.S.A. babies at two out of the three months where the data are available.

(2) The babies from rural areas around Baroda stand higher than U.S.A. babies on motor scale scores upto 15 months but on mental scale they do not show any clear trend.

(3) The three groups of Indian babies tend to stand higher than U.K. and Israel babies on motor scale. However the comparative standings on mental scale indicate that wherever the data are noted for Israeli babies they tend to stand highest and U.K. babies tend to stand in between Indian and U.S.A. babies.

Table 11 : RANK ORDER OF MEANS ON MOTOR AND MENTAL SCALES OF BABIES FROM DIFFERENT POPULATIONS

AGE IN MONTHS	MOTOR MEAN SCORES RANKS						MENTAL MEAN SCORE RANKS					
	Indian						Indian					
	Ur-Up	Ur-Lo	Ru.	U.S.A.	U.K.	ISRAEL	Ur.Up	Ur.Lo	Ru.	U.S.A.	U.K.	Israe
1	4	1	2	6	5	3	4	1	2	5	6	3
2	3	1.5	1.5	6	5	4	2	1	4	5	6	3
3	3	2	1	6	5	4	1.5	3	5	6	4	1.5
4	3	1	2	6	5	4	2	4	6	5	3	1
5	3	1	2	5	5	4	1	3	6	5	4	2
6	2	1	3	4	5	6	2	4	6	5	3	1
7	2.5	2.5	1	5	4	6	1	5	4	6	2	3
8	1	2	3.5	6.	5	3.5	3	4	5	6	2	1
9	1	2	3	5	4	-	2	3	4	5	1	-
10	2	4	3	5	6	1	2	5	6	4	3	1
11	1.5	3.5	1.5	3.5	5	-	1	2	3	5	4	-
12	1	5	4	2	3	6	2	4	5	6	3	1
13	1	3.5	2	3.5	5	-	1	4	3	5	2	-
14	1	2	4	3	5	-	1	3	5	4	2	-
15	1	6	2	4.5	3	4.5	3	4	6	5	2	1

Table 11 - continued

AGE IN MONTHS	MOTOR MEAN SCORE RANKS						MENTAL MEAN SCORE RANKS					
	Indian						Indian					
	Ur-Up	Ur-Lo	Ru	U.S.A.	U.K.	Israel	Ur.Up	Ur.Lo	Ru.	U.S.A.	U.K.	ISRAEL
16	-	-	-	-	-	-	1	-	-	2	-	-
17	-	-	-	-	-	-	1	-	-	2	-	-
18	2	-	-	3	-	1	2	-	-	3	-	1
19	-	-	-	-	-	-	1	-	-	2	-	-
20	-	-	-	-	-	-	1	-	-	2	-	-
21	-	-	-	-	-	-	2	-	-	1	-	-
22	-	-	-	-	-	-	1	-	-	2	-	-
23	-	-	-	-	-	-	1	-	-	2	-	-
24	2	-	-	1	-	3	2	-	-	3	-	1
25	-	-	-	-	-	-	1	-	-	2	-	-
26	-	-	-	-	-	-	1	-	-	2	-	-
27	3	-	-	1	-	2	2	-	-	3	-	1
28	-	-	-	-	-	-	1	-	-	2	-	-
29	-	-	-	-	-	-	1	-	-	2	-	-
30	-	-	-	-	-	-	1	-	-	2	-	-

(c) Comparision of age-placements in the present study and B.S.I.D. Research Form 1961 :

All the items in the Bayley scales of motor and mental development are arranged in the difficulty order and are placed at specific age in months. The age-placements of the items in the two scales are not final as explained in the manual. The placements of the first 46 items from the motor scale and first 115 items from the mental scales, have been calculated from the standardization samples. The remaining items are either tentatively placed or their difficulty order is carried over from the prior versions of the items.

The age placements of the items in the present study are confined to the test records of the upper S-E class babies. The median age-placements of the items in the present study (The order of items as given in Appendix C-4 & 8) were compared with age placements mentioned in the research form, item by item. Items having a difference of more than .5 (15 days) in their two placements were noted.

The frequencies of items with significant differences were studied for the later and earlier placements than in Bayley's forms with reference to earlier items i.e. those placed by observations of children of 1-15 months and latter i.e. those that are placed tentatively. Table 12 gives the classified frequencies and the items in details are underlined in the scales presented in Appendix C-4 and C-8.

Table 12 : FREQUENCY OF ITEMS PLACED EARLIER AND LATER BY MORE THAN 15 DAYS FOR BAYLEY ITEMS PLACED BY OBSERVATIONS AND ITEMS PLACED TENTATIVELY.

Scale	Direction of difference in placement	Placed by observation 1-46 (motor) 1-115(mental)	Tentatively placed. 47-62 116-163	Not placed in	
				Bayley	Baroda
Motor	Earlier	18 (.6 to 1.6)	7+2* = 9 (1.1-3.7)	5	2
	Later	--	4 (.7 to 2.3)	-	-
Mental	Earlier	28 (.6 to 2.7)	23 (.6 to 5.0 or more)	Nil	
	Later	3 (.6 to 1.4)	15 (.7 to 2.8)		2

* Out of 5 not-placed in Bayley Forms.

The table clearly shows the high percentage of displaced items in the group of tentatively placed items. 13 out 20 of the motor scale items and 38 out of 48 items of the mental scales are displaced against 18 out of 46 and 31 out of 110 for motor and mental items placed after observations. As the age placements in Bayley research forms are still under study it is difficult to interpret the displacements of items as earlier or later development of Indian babies.

VII - STUDY OF THE SCALE

The longitudinal records of babies from upper socio-economic class in Baroda which were used in collecting normative information were further used in studying the scales for their validity and realiability as applied to Indian babies.

(a) Validity :

(i) Face validity and increase in mean scores :

Even a cursory glance through the items in the motor and mental scales indicate their face validity. This impression is supported by the developmental indication in the continuously increasing total scores as the age increases, in all our study groups. In the one group studied upto 30 months and all the other groups and sub-groups studied upto 15 months, the trend of continuous increase in motor and mental means has been noted. (Tables A-1, A-21, A-7, A-27, A-30 and A-31). Hence the developmental validity of the scale as applied to Indian babies be accepted.

(ii) Motor - Mental Interrelationship :

An indirect indication of validity of the motor and mental scales would be given by significant positive correlation between the two scales. This is because of the expected interrelationship of the motor and mental development during infancy. Table A-44 gives the calculated correlations between motor and mental scores for 1 to 30 months. All the correlation are positive and significant except at one month age. The range of correlation is +0.24 to +0.62.

Bayley (1935) has reported a correlation of 0.50 between the motor and mental scores of Berkeley Growth Study Children. Honzik (1962) with her sample of 67 boys and 37 girls (control groups) of 8 to 8½ months old found the correlations between the motor and mental scores to be .43 and .33 respectively. In Table A-44 the motor-mental correlation at 8 and 9 months are .38 and .46 for samples of 173 and 169 babies, respectively.

Francis-Williams (1967) has also calculated similar correlations. Her range of 'r's for 1 to 15 months is -.17 to .66. In her studied also the lowest correlation is at 1 month.

(b) Reliability indices :

(i) Test-retest reliability :

The design of longitudinal data collection provided opportunity to study the test-retest reliabilities. Product-moment correlations were calculated between the test-records of consecutive months from 1 to 30 months. Table A-45 gives the relevant calculations. All the correlations of repeated motor and mental total scores with an interval of one month are positive. They are also significant at .01, except between first and second months for both the scales and between 2nd and 3rd month for the mental scales. The ranges of 'r's for the motor and mental scales are from 0.12 to .83 and 0.15 to 0.88 respectively.

(ii) Split-half reliability indices :

Split-half reliability correlations of the two scales were calculated at each month under study by following the usual procedure of splitting the scale by odd-even items. Using the correlations, reliability indices for the whole scales were calculated by using Spearman-Brown formula. Table A-46 gives the reliability indices of the motor and mental scales for 1 to 30 months of age.

The reliability indices for the motor scale vary from 0.49 to 0.95, the median index being 0.88 and for mental scale they vary from 0.70 to 0.95 the median being 0.91.

Bayley (1965) has reported the reliability indices for the first fifteen months. She has used Kuder-Richardson Formula-20 for internal consistency. Her ranges of reliability for motor and mental scales are .57 to .97 and .79 to .94 respectively. Francis Williams reports corresponding ranges of .37 to .96 and .44 to .98. Francis Williams has used Spearman-Brown Formula for correction of split-half reliabilities.

In the present study, most of the reliability indices are high. However, one cannot ignore the possibility of they being not properly estimated due to the mechanical odd-even halves which may not become equivalent.

(iii) Testing reliability :

The testing records for the present study were collected over a period of five years by a number of testers trained on service as described in the introduction.

The reliability of testing over time on equivalent sample was implied in cross validation in our interim reports which were based upon samples collected before and after July 1, 1966 (Phatak et al 1968, 1969a). Tables A-47 and A-48 give the motor and mental mean scores of the two samples and 't' values of their differences respectively.

As regards the motor scales, at 28 out of 30 months under study such differences are non-significant. As regards the mental scale the incidence of non-significant differences is slightly less, it is at 21 months out of 30 months.

The not significant differences in the majority of means in the two samples indicate a fairly high degree of cross validity and be taken as an indication of the extent of testing reliability.

(iv) Testers Agreement :

Testing reliability was also studied in terms of recordings made by different testers. This might also indicate the objectivity of the scale and the evaluation of on service training of the testers. The test records in the basic sample at each month were classified according to the testers. The test records per tester at any month were not comparable for there was a possibility of certain type of children being tested by a particular tester, depending upon the time, and experience of the tester. Moreover for sometime the policy of having the same tester for the repeated testings of the same child was followed. Hence, applying F-test could not be considered as appropriate for the present data. In order to get some insight into the score-variability amongst the testers the mean scores for each month for records by each tester where she has tested at least 3 babies were calculated. These means were compared with the ± 1 SD limits on the sample means. Tables A-49 and A-50 give the relevent figures for motor and mental testings respectively.

A comparative inspection of the means by different testers and the ± 1 SD sample limits for each month reveal that as regards the motor scale no tester has gone beyond the limits at any month. With the mental scale two testers have crossed the limits. At 8 months one tester's mean is less than the -1 SD limit by 0.2 and at 29 months another tester's mean exceeds + 1SD limit by 0.1 These are underlined in the tables. This only suggests that the testers on their average records have tended to remain within ± 1 SD classification.

Testers agreement on simultaneous recording of the performance by two testers have been reported by Werner (1966), for each item. The present study did not provide data for such a study. The study about testers reliability has been done with a crude procedure and hence cannot be used in making any confident note about testers agreement. However, it does indicate the significance of the training of the testers for administering the scales. The training of the testers so as to make recording over populations comparable, has been paid attention to in the studies reported on the Bayley Scales (Bayley 1965). The published manual also includes a paragraph on training of examiners (p.p.5-6). The training procedure followed in the present study had a number of limitations. It was all inservice training. Sometimes it had to be pushed through because of the pressure of testing schedule. Moreover there was no choice but to accept the available person and train him to do the testing as best as he could. It was always felt that availability of trained testers requiring a little training or perhaps a refreshing course would have improved the testers agreement. It would have perhaps further enriched our study.

(c) Item distribution and age-scales :

Bayley's scales are point scales and the items are not necessarily related to age for scoring. This appears to be advantageous for developmental studies. However, while going through the age placements of the items on the basis of 50% sample passing the item it was found that in both the scales there was high loading of items during the first year or so. About 75 percent of the items in both the scales are placed during this period. There are a few months in both the scales during which only one item is placed. The uneven distribution of the items makes it difficult to think of sub-scales related to age in months. This also reduces the **prima-faci** appeal of the total scale if one looks at it from the point of view of the age of the child to be tested.

Arrangement of items of age placement for 50% sample passing also suggests some uncertainty for the expectation from the child being tested on any item at the age of the item placement. It is implied in 50% pass age that 50% have failed the item at that age.

Frequencies of items placed during each month under different percentages were noted from Tables A-6 and A-26 in order to find out whether item placements based on different percentages of sample children passing the item give different distributions. Tables A-51 and A-52 give the noted frequencies for motor and mental scales respectively. The study of the tables do not show any appealing change in the distribution of items from perçentage to percentage.

However, in order to inculcate differential expectations in the age placement of the items it may be suggested that the items be arranged on the basis of age placement for some higher than for 50% sample passing the item.

A critical study of the contents of the items stimulated by their uneven distribution suggest the emphasis on the attainment of the basic motor and mental controls and skills which are easily observed in details during the earlier half of the infancy period. Perhaps the idea of having age-sub-scales out of the point scales be **abandoned** especially after 18 months.

(d) Difficulty order of the items

The difficulty order of the items in the two scales as observed in the present study is changed for some items. How far the changes in the order of the items are significant was studied by calculating rank order correlations between the two arrangements which came to .996 and .997 for motor and mental scales respectively. In the motor scale 37 items have changed their ranks and the largest shift was by 4 ranks. In the mental scale 142 items have undergone some shift. Majority of them have done so by 1, 2 or 3 ranks though the largest shift is of 18 numbers. For a similar study Jessie Francis-Williams (8) had reported rho's of .997 and .994 for motor and mental scales.

VIII SUMMARY OF OBSERVATIONS, REVIEW OF INDIAN RESEARCHES AND COMMENTS

(a) Summary of observations :

In the present study the testing records of the upper S-E class babies in Baroda (Urban), highly weighted with longitudinal testings (about 75%) have been used as the basic sample. The normative information and the scale study are confined to this sample. The sample of lower S-E class babies in Baroda (Urban) include some (about 33%) longitudinal records. The sample from rural areas is only of cross-sectional testings.

In collecting the samples no special attention could be paid to sex representation or various S-E class representation within the groups. Consequently, the differences in the size of samples used for various comparisions have sometimes become formidable; e.g. the ranges of upper S-E classes in Baroda and rural areas are 60 to 178 and 6 to 25 respectively. In spite of such a disparity in numbers the appropriateness of comparative studies is justified by the representative trait of the samples and their uniqueness.

Besides Bayley norms on U.S.A. babies the mean scores of Indian babies are compared with the mean scores of British and Israel babies reported in two studies. The means of Israel boys coming from private homes are used for comparisons for two reasons. Firstly living in private home with parents gives a comparable background. All these children belonged to middle class families. Secondly the sample of boys was larger than that of girls from the same environment. The comparisions of six groups, three from India and three from abroad, however might have been influenced by (1) the differences in sample size (2) testing situation and (3) training of the testers. Out of all the groups comparisons of scores of Indian and American babies seem to be more confident than the remaining groups. Both these samples are sufficiently large and are influenced directly or indirectly by Bayley in making the test-setting and in the training of the testers.

The following is the summary of observations of this study.

(i) The scales applied to Indian babies show continuous increase in all the groups.

(ii) The following norms based upon the urban (Baroda) upper S-E class babies are noted :

   (1) Percentile total motor and mental scores for 1 to 30 months for boys and girls separately.

   (2) Deviation motor quotients (DMQ) and Deviation mental quotients (DMEQ) for 1-30 months based on the group of boys and girls together.

(iii) The pattern of speed of motor and mental growth as observed in the related samples of urban (Baroda) upper S-E class is of rising speed upto 6 months. It starts decreasing and seems to become steady during 12 to 16 months.

(iv) The motor and mental performance at possible month from 1-30 months is compiled at three levels of what almost all could do, scale value and what was possible but very rare. The compilation is based upon the various age placement of the items.

(v) Stable sex-differences in motor and mental scores are conspiciously observed in the urban upper S-E group but not in urban lower S-E group and rural group.

(vi) The urban - rural dichotomy seems to be more differentiating for girls than for boys on both the scales. Girls also seem to be more influenced by S-E, class than the boys.

(vii) The urban upper S-E group seems to be performing better than the other groups on both the motor and mental scales except for the first 6 to 7 months on the motor scale.

(viii) The influence of S-E class appears to be differentiating motor and mental performance in urban areas but not doing so in rural areas.

(ix) The urban environment suggests positive influence on mental performance of the babies.

(x) The trends of motor and mental scores on Bayley Scales (Research Form 1961) tend to be similar in Indian, American, British and Israel babies.

(xi) Indian babies especially the upper S-E groups from Baroda tend to score higher than babies in U.S.A., U.K. and Israel on motor scale for the first fifteen months of life, babies from U.S.A.seem to surpass after 16 months.

(xii) On mental scale the babies from upper S-E class in Baroda score higher than U.S.A. and U.K. over the total period available for comparision. However, they tend to score less than Israel babies.

(xiii) The validity and the reliability of the scales as applied to Indian babies are acceptable.

(xiv) The idea of having sub-scales for different months within the total scale be abandoned.

(xv) The difficulty order of the items with the Indian sample maintains significantly high relationship with the order with U.S.A. babies.

(b) Review of Indian Research Reports :

As far as the present investigator is aware, most of the Indian Researches in child growth and development are of individual undertakings with limited funds or of student's work done as part-fulfilment for a degree. Very recently, the studies based on longitudinal observations have appeared (Shroff 1962, Bassa 1966, Jha 1969). Interest in developmental studies is on the increase especially amongst the pediatricians and nutritionists (Swaminathan, 1964).

A compilation of a bibliography of researches on child growth and development was attempted from published research articles, reports, compilations of research titles and by personal contacts. Indian researches in the bibliography are shown by (*). The major emphasis of these researches seem to be physical growth, anthropometric measures, and health especially related to variables such as sex, religions, nutrition, education and income of the parents.

Some students of child growth and development have emphasised the psychodynamic approach. Das Gupta (1945) has presented psychoanalytic explanations of the observed behaviour of a normal two year old child, named Satu. D.M.Bassa (1966), the psychiatrist attached to the Kherwadi Family and Community Health Centre at Bombay, is following some children from slum areas soon after birth. The emphasis in the longitudinal study is on the psycho-dynamic aspects of growth and development. However Gessell's Developmental Charts are being used as a part of the child's examination. Perhaps the data collected at the center might lead to an understanding of the process of growth and development.

With reference to the specific field of interest of the present report, i.e. motor and mental or intellectual and social development during infancy, very little has been done systematically and similarly so as to make confident comparison with the present study. However a few studies might be mentioned here in detail..

Chovan [illegible]. has written a treatise (1957) on Social adjustment of the child from birth to the sixth year and related it to the nursery school education. He has considered the period from birth to six years as the pre-school period. The treatise builds up the process of growth and development by giving the summary picture of the characteristic achievements and behaviour during 1-3, 3-6, 6-9, 9-12, 12-18, 18-24 months and then during 3rd, 4th, 5th and 6th year. The summary pictures are mostly based upon the developmental milestones noted by foreign authors of renown, such as Baldwin, Buhler, Bowley, Montessori, Shirley, etc. and are supported by the personal experiences of the author with his own children and other children around him.

The earliest work about growth and development during infancy goes to the credit of Venkatachar V (1930). In his work on growth of intelligence from birth to one year, he has standardised test items for the age groups of 4,6,9 and 12 months. A preliminary long list of items was made by referring to Gessell's work and Kohler's experiements with the chimpanzees. The original items and designs of problems have been modified and adjusted for application in the Indian situation. All the children of 4,6,9 and 12 months of age in the city of Mysore and for whom the birth dates were available, were tested by the investigator at the childrens' homes. They were 99 in all. They mostly came from higher middle class (Income Rs.101 to Rs.400 per month).

On the basis of the percentages of babies passing each item four age-scales were formed, each consisting of 20 items. These 20 items included 5 easy items 10 average items and 5 difficult items. The items were weighted by 1,2 and 5 respectively making the weighted value of each scale as 50. These scales were used to study further the influence of factors such as parents' ages, their education, family size, sex etc.

On the basis of various comparisons the author notes that the following factors seem to be related to mental retardation in the order of importance.

(1) Weak physical constitution.

(2) Extremes of poverty and riches.

(3) Immaturity and inexperience of mothers.

(4) Lack of suitable companions at home.

(5) Illiteracy of parents.

The performance of these babies are also compared with the performance of the American babies. The author has observed that Mysore children appear to be superior to the American children in tests of pursuit and manipulative reactions below 6 months.

R.Uklonskaya, et.al (1960) have reported their observations about the development of static and psychomotor functions during the first year of life 605 boys and 395 girls between the ages of 1 month to 1 year, were observed by the doctors at the Maternity and Child Welfare Centres of New Delhi and at well baby clinic of Kalawati Saran Children's Hospitals. All the infants were born normally at full term. Except 9%, all the children came from families having income less than Rs.300/- per month. The physical development of these babies was normal.

The investigators were stimulated by Prof. N.M.Schelovanov's investigations made in the Soviet Union. The doctors selected 11 features of psychomotor development as follows :

(1) Fixing of eyes at objects.

(2) Smiling.

(3) Holding of head

(4) Supporting of upper part of the trunk in prone position.

(5) Holding of objects.

(6) Turning over.

(7) Sitting without support.

(8) Crawling.

(9) Standing without support.

(10) Toddling.

(11) Speaking monosyllabic words.

Nothing is said about the procedure of observation or observer's agreement. Percentages of children who were observed doing the action at each month are reported.

The observations on Indian babies are compared with the Russian standard norms of psychomotor development. It is noted that the Indian babies were on par with Russian babies brought up under necessary care upto 7 months and then their development is retarded. Details of comparison are not given. The retardation after seventh month is explained by referring to the complicated

Psychomotor functions of crawling, standing with support, toddling and speaking which require special adult attention and training and mother's lack of such knowledge about training and bringing up babies.

Badami (1964) collected from the parents of 200 preschool children in Cambay (Gujarat) their ages of creeping, sitting, walking and speaking. He presents the mean ages in months for the five milestones, thus collected retrospecitively. They are 29.82, 39.06, 43.96, 64.22 and 64.98 months respectively. In the abstract the author has noted that there were variations among the reports of other studies. It is suggested that the variations might be due to the differences in subjects, definations, methods of study and interpretation. However, it must be also noted that retrospective information about such milestones often tend to be unreliable.

Jha Saroj S.(1969) followed longitudinally 61 babies born in B.Y.L.Nair Charitable Hospital from birth to 12 months. All children belonged to sweeper community employed by the Conservancy Branch of the Bombay Municipal Corporation. The range of monthly income of the families was Rs.150/- to Rs.200/-. A minimum of 12 observations were made on every infant. The examination each time recorded developmental milestones besides anthropometric measures, episodes of illness, immunisations, feeding pattern and social conditions. The following 10 milestones of attainments were considered.

(1) Smiling
(2) Holding head
(3) Turning over
(4) Sitting with support
(5) Sitting without support
(6) Crawling.
(7) Standing with support.
(8) Standing without support
(9) Walking alone
(10) Words.

While recording the child's attainments with the milestones from the mother's reportings they were confirmed at the clinic and then recorded. Percentages of babies attaining each of the milestones at different ages from 1 month to 12 months were calculated. The percentages for boys and girls were also noted separately. The author notes that the developmental milestones, of the sample are retarded. The infants are on par with New Delhi sample of infants studied by Uklonskaya, et al (1960) in the milestones of holding head, turning over and crawling while they are retarded in sitting without support, standing without support walking and words. When compared to similar studies in U.S.A.(Norval and Aldrich), U.K. (Illingworth), Singapore (Kim & Eng) and Cylone (Fernando) the sample babies are at par or nearly so with the series of U.K., Singapore and Cylone for the early milestones. They are very much behind the U.S.A. series on all milestones and particularly retarded at standing, walking and words. Jha also observed that the girls are advanced over boys in every mile stone. The report does not clarify the health conditions of the sample babies either at birth or at the time of examination.

A study which comes closer to the present study is the work done by Abhichandani (1970). She has selected items from Bayley's scales (Research Form)and Denver Developmental Screening Test,(1966) for her tentative inventory. Although she selected items from foreign scales she used indiginous materials for testing her babies. She has grouped her items into 5 major categories, viz.(i) gross motor,(ii) personal social (iii) language (iv) Fine motor adaptive and (v) Discriminative behaviour. Eighty babies born in A.I.I.M.S.were studied at birth and subsequently at every month upto 18 months.

The author has noted that the physical measurements of the sample babies were similar to other recent Indian observations though they were lesser than their American counterparts. The comparisons of age placements of the items on the Indian sample and Bayley's, indicated significant precosity of the former over the latter on a few items. As regards the background factors the author has observed that low birth weight babies were slightly retarded.

(c) Comments :

The major objective of the present study was to collect some normative information about motor and mental growth of Indian babies on Bayley Scales and incidently compare their performance with the Bayley norms on U.S.babies.

The separate treatment of the three Indian samples, namely urban upper class babies, urban lower class babies and rural babies justify our use of urban upper S-E group longitudinally tested as the basic sample for normative data. The separate treatment of the three groups have lead us to some observations about the sex-differences, S-E class differences and environmental differences.

The comparison of mean total motor scores of babies from different populations suggest the superiority of Indian babies over the populations from more industrialised and hence advanced countries for the 1st fifteen months. Within the Indian samples for the first six months of life it appears that the Urban Upper S-E class babies score lowest on averages. Where as surprisingly enough the urban lower S-E class babies tend to be highest while the babies from rural areas occupy the middle position. Perhaps these observations might be indicating the suppressing influence of highly industrialised modern way of life on motor behaviour during the first few months of life. The deterioration of Indian babies as the age increases might be due to multiple factors which require further study. The comparability of Indian lower S-E class babies with babies from advanced countries on earlier milestones have been also suggested in the few Indian studies described in the prior section. (Venkatachar 1930, Uklonosky 1960, Jha 1969).

As regards the comparative standing on mental scales, urban upper class babies show better averages than the U.S.A. sample practically for the whole period under study. Within the Indian groups, during the first fifteen months the upper S-E group tends to stand highest and the rural group tends to stand lowest. This order is different than what has been observed with reference to mean motor scores. It seems therefore that there might be some forces in the environment of upper class urban babies in India which might be reinforcing the babies behaviour and learning on mental functioning as measured by Bayley's scales.

Perhaps some of these factors might be simultaneously suppressing the motor functioning. Of course this is just a conjecture which needs further insight.

The superiority of Indian babies over U.S.A. babies, especially for the first fifteen months have been observed by almost all Indian authors. However, the reasons for the observed superiority have not been studied.

Differences in the child rearing practices specially in relation to freedom of movement and social communication might be suggested hypothetically.

The influence of S-E classes on growth and development have been reported in varied studies Venkatachar 1930, Udani 1963. Hindley (1961) notes significant influence of the family environment. Bayley (1965) did not find any differences in motor and mental scores for babies classified according to educational level of father and mother. Marjorie P.Honzik (1966) observes that in the urban area all measures of S-E status of the family are unrelated to the children's test scores before 2 years. Klackonber (1966) has noted that from the age of 18 months significant differences occur in the mean quotients of the upper and lower social classes family income in his study is negatively related to childrens development at early months

(3-5). They become significantly positively related around 3 years of age.

Making use of the longitudinal data under the present project which is mainly of upper S-E class babies in Baroda, a study of factors related to accelerated and retarded patterns of motor and mental growth of urban babies was made by the present investigator (1968,1970). Parental education, difference in parents' ages, birth weight within the range of normal birth weight, diet during pregnancy, earlier or later birth order - upto order 3 or beyond, are some of the factors which occured differently in the two patterns for motor performance. With reference to mental patterns, it was noted that it was difficult to have differentiating patterns before the age of 13 months. Parents education, their income, diet during pregnancy and birth order suggested some relationship with the two patterns.

It may be concluded that the influence of S-E class upon growth and development have been indicated with more or less evidence in most of the investigations. Perhaps a further critical look for the influencing forces might be revealing.

Sex-differences during infancy have been also studied by a number of Indian and foreign authors in varied areas such as birth weight, physical growth psychomotor performance etc. (Currimbhoy 1963, Jha 1969, Ghatak 1968a 1968b) However, there is little evidence of significant sex differences in motor and mental scores on Bayley Scales.

.Bayley (1965), Francies William (1968-69) did not find any significant sex differences. Kohan Raz (1968) has treated the samples separately indicating his expectation of sex differences. Hindley (1961) while studying the social class influences on the Development of Ability in first five years reports " no significant sex differences but emphasizes the need for critical and extensive study because of several trends, suggesting differences. On the basis of the consistant (5 out of 6) higher correlations between scores at two ages than those of boys Dr.Hindley suggests a greater stability of development in girls. In the present study we have observed a trend of significant sex differences in motor and mental scores in one group only. However, girls seem to be more sensitive to urban and S-E class influences.

In the present study the environmental and sex differences in the mean motor and mental scores have been suggested repeatedly. A critical study of these forces is warrented to explain the observed differences in the groups from different populations.

Besides the immediate objectives of a research plan any research implies raising some further querries not only for those who are involved in it but also for the reader of the report. Such a purpose will be served if the reader of this report will have more querries than what we can answer. On our part we would like to raise the following questions.

(1) What will be the trend of differences in motor and mental performance of babies in urban S-E classes and rural areas beyond the age of 15 months ?

(2) What are the differentiating variables in the various situations that bring in differences.

(3) Do the biological differences in the two sexes express themselves in early motor and mental growth ? etc. etc.

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APPENDIX-A

TABLE A-1 : MEANS AND STANDARD DEVIATIONS OF MOTOR PERFORMANCE SCORES FOR BOYS, GIRLS AND TOTAL GROUP OF BABIES OF AGE 1 to 30) MONTHS

AGE IN MONTHS	BOYS			GIRLS			TOTAL GROUPS		
	N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D.
1	34	9.06	1.07	26	9.35	0.89	60	9.18	1.00
2	66	12.27	1.90	38	12.68	1.68	104	12.42	1.83
3	70	15.67	2.17	43	16.30	1.75	119	15.90	2.05
4	68	19.54	2.00	56	20.02	2.48	124	19.76	2.23
5	85	20.87	2.57	64	24.02	2.84	149	23.36	2.74
6	96	28.28	3.10	70	29.37	3.13	166	28.74	3.15
7	94	32.85	3.00	70	34.30	2.98	164	33.47	3.06
8	97	36.55	2.62	76	37.72	2.47	173	37.06	2.61
9	95	39.72	4.40	74	40.66	2.14	169	40.13	3.61
10	103	42.11	2.83	66	43.27	1.85	169	42.56	2.55
11	100	44.46	2.34	72	45.01	1.99	172	44.69	2.21
12	105	45.64	2.24	73	45.99	2.49	178	45.78	2.34
13	88	47.63	2.68	76	48.37	3.13	164	47.97	2.91
14	98	49.40	3.13	68	49.68	3.60	166	49.51	3.32
15	105	50.70	3.03	72	51.60	3.25	178	51.06	3.14

Contd..

Table A-1 continued.

AGE IN MONTHS	BOYS			GIRLS			TOTAL GROUPS		
	N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D.
16	84	51.77	3.21	56	52.64	2.91	140	52.12	3.11
17	77	53.34	2.45	61	53.49	2.62	138	53.41	2.52
18	75	53.95	2.09	61	54.57	1.98	136	54.23	2.05
19	81	54.31	2.77	50	54.70	1.96	131	54.46	2.49
20	80	54.69	2.43	51	55.51	1.93	131	55.01	2.28
21	75	55.43	1.55	57	55.75	2.21	132	55.57	1.86
22	71	56.15	2.05	56	56.36	2.76	127	56.24	2.38
23	76	55.58	2.84	49	57.37	3.10	125	56.89	2.96
24	75	57.25	2.64	51	57.84	3.64	126	57.49	3.08
25	70	58.56	3.42	49	59.59	3.13	119	58.98	3.33
26	71	59.15	3.14	49	60.43	3.34	120	59.68	3.27
27	74	60.83	3.51	42	61.14	3.29	116	60.94	3.42
28	69	61.49	3.37	43	62.56	3.70	112	61.90	3.55
29	75	62.35	3.05	44	63.25	3.09	119	62.68	3.09
30	69	63.68	2.94	45	64.18	2.95	114	63.88	2.94

TABLE A-2 : SIGNIFICANCE OF DIFFERENCES IN THE MEAN MOTOR SCORES OF BOYS AND GIRLS FOR AGES 1-30 MONTHS

AGE IN MONTHS	D^{+} (B-G)	σ_D	$t^{@}$
1	-0.29	0.26	1.11
2	-0.41	0.37	1.11
3	-0.63	0.39	1.63
4	-0.47	0.40	1.18
5	-1.15	0.44	2.57*
6	-1.09	0.49	2.23*
7	-1.45	0.47	3.07**
8	-1.18	0.39	3.01**
9	-0.95	0.56	1.70
10	-1.17	0.39	2.96**
11	-0.55	0.34	1.63
12	-0.35	0.36	0.97
13	-0.74	0.45	1.64
14	-0.28	0.52	0.53
15	-0.90	0.48	1.89

Contd..

+ Means are given in Table A-1.

@ Numerical values of t's irrespective of signs are presented throughout.

* Significant at 5 percent level of significance

** Significant at 1 percent level of significance.

Table A-2 continued.

AGE IN MONTHS	+ D (B-G)	σD	t
16	-0.87	0.53	1.63
17	-0.15	0.43	0.36
18	-0.63	0.35	1.78
19	-0.39	0.45	0.87
20	-0.82	0.40	2.04*
21	-0.33	0.33	1.00
22	-0.20	0.43	0.47
23	-0.79	0.54	1.46
24	-0.59	0.56	1.06
25	-1.03	0.62	1.68
26	-1.27	0.60	2.13*
27	-0.32	0.66	0.48
28	-1.07	0.69	1.55
29	-0.90	0.58	1.55
30	-0.50	0.56	0.88

+ Means are given in Table A-1.

TABLE A-3 : PERCENTILE SCORES ON MOTOR SCALE FOR BOYS

AGE IN MONTHS	PERCENTILE SCORES						
	3	10	25	50	75	90	97
1	7.45	7.69	8.34	9.06	9.73	10.43	11.07
2	8.70	9.83	10.99	12.27	13.55	14.71	15.84
3	11.59	12.89	14.21	15.67	17.13	18.45	19.75
4	15.78	16.98	18.19	19.54	20.89	22.10	23.30
5	18.44	19.58	21.14	22.87	24.60	26.16	27.70
6	22.45	24.31	26.19	28.28	30.37	32.25	34.11
7	27.21	29.00	30.83	32.85	34.89	36.70	38.49
8	31.62	33.19	34.78	36.55	38.32	39.91	41.48
9	31.44	34.08	36.75	39.72	42.69	45.36	48.00
10	36.72	38.48	40.20	42.11	44.02	45.74	47.43
11	40.06	41.46	42.88	44.46	46.04	47.46	48.86
12	41.45	42.77	44.13	45.64	47.15	48.51	49.85
13	42.59	44.19	45.82	47.63	49.44	51.07	52.67
14	43.51	45.39	47.29	49.40	51.51	53.41	55.29
15	45.00	46.82	48.65	50.70	52.75	54.58	56.40

Contd..

Table A-3 continued.

AGE IN MONTHS	PERCENTILE SCORES 3	10	25	50	75	90	97
16	45.73	47.65	49.60	51.77	53.94	55.89	57.81
17	48.73	50.20	51.69	53.34	54.99	56.46	57.95
18	50.02	51.27	52.54	53.95	55.36	56.63	57.88
19	49.10	50.76	52.44	54.31	56.17	57.86	59.52
20	50.12	51.57	53.05	54.69	56.33	57.91	59.26
21	52.51	53.44	54.38	55.43	56.49	57.42	59.35
22	52.09	53.52	54.77	56.15	57.53	58.78	60.01
23	51.24	52.94	54.66	56.59	58.50	60.22	61.92
24	52.28	53.87	55.47	57.25	59.03	60.63	62.22
25	52.13	54.18	56.25	58.56	60.87	62.94	64.99
26	53.24	55.12	57.03	59.15	61.27	63.13	65.06
27	54.22	56.32	58.45	60.82	63.19	65.32	67.42
28	55.18	57.17	59.22	61.49	63.76	65.81	67.83
29	56.01	58.44	60.29	62.35	64.41	66.26	68.09
30	58.15	59.91	61.70	63.60	65.66	67.45	69.21

TABLE A-4 : PERCENTILE SCORES ON MOTOR SCALE FOR GIRLS

AGE IN MONTHS	PERCENTILE SCORES 3	10	25	50	75	90	97
1	7.68	8.21	8.75	9.35	9.95	10.49	11.02
2	9.52	10.53	11.55	12.68	13.81	14.83	15.84
3	13.01	14.06	15.12	16.30	17.48	18.54	19.59
4	15.36	16.84	18.35	20.02	21.69	23.20	24.68
5	18.68	20.38	22.10	24.02	25.94	27.66	29.36
6	23.48	25.36	27.26	29.37	31.48	33.38	35.26
7	28.69	30.48	32.29	34.30	36.31	38.12	39.91
8	33.07	34.55	36.05	37.72	39.39	40.89	42.37
9	36.63	37.92	39.22	40.66	42.10	43.40	44.69
10	39.79	40.90	42.02	43.27	44.52	45.64	46.75
11	41.27	42.46	43.67	45.01	46.35	47.56	48.75
12	41.31	42.80	44.31	45.99	47.67	49.18	50.67
13	42.48	44.36	46.26	48.37	50.48	52.38	54.26
14	42.91	45.06	47.25	49.68	52.11	54.30	56.45
15	45.49	47.43	49.41	51.60	53.79	55.77	57.71

Contd..

Table A-4 continued.

AGE IN MONTHS	PERCENTILE SCORES 3	10	25	50	75	90	97
16	47.17	48.91	50.60	52.64	54.6	56.37	58.11
17	49.56	50.13	51.72	53.49	55.26	56.95	58.42
18	50.85	52.03	53.23	54.57	55.91	57.11	58.29
19	51.01	52.19	53.38	54.70	56.02	57.21	58.39
20	51.30	53.04	54.21	55.51	56.81	57.98	59.14
21	51.59	52.92	54.26	55.75	57.24	58.58	59.91
22	51.17	52.82	54.50	56.36	58.22	59.90	61.55
23	51.54	53.40	55.20	57.37	59.46	61.34	63.20
24	50.99	53.17	55.38	57.84	60.30	62.51	64.69
25	53.70	55.58	57.40	59.59	61.70	63.60	65.48
26	54.15	56.15	58.19	60.43	62.68	64.71	66.71
27	54.95	56.92	58.92	61.14	63.36	65.36	67.33
28	55.45	57.71	60.01	62.56	65.11	67.41	69.67
29	57.44	59.29	61.16	63.25	65.34	67.21	69.06
30	58.03	60.40	62.19	64.13	66.17	67.96	69.73

TABLE A-5 : MOTOR MEAN SCORES OF THE RELATED SAMPLE FROM UPPER S-E GROUP IN BARODA (URBAN) FOR SUCCESSIVE PAIRS OF AGE GROUPS AND THEIR DIFFERENCES WITH 't' VALUES+ FOR BOYS AND GIRLS

AGE IN MONTHS	BOYS				GIRLS			
	MEANS				MEANS			
	EARLIER	LATER	D	t	EARLIER	LATER	D	t
1 & 2	8.90	12.38	3.48	7.04**	9.38	13.00	3.62	8.12**
2 & 3	12.16	15.78	3.62	9.54**	12.85	16.25	3.40	6.20**
3 & 4	16.05	19.55	3.50	6.96**	16.18	20.00	3.82	7.22**
4 & 5	19.39	22.78	3.39	7.33**	19.91	24.12	4.21	6.34**
5 & 6	22.80	27.89	5.09	9.59**	23.78	29.30	5.52	8.12**
6 & 7	28.17	32.91	4.74	9.04**	29.38	33.96	4.58	7.24**
7 & 8	32.88	36.84	3.96	8.15**	33.92	37.62	3.70	7.06**
8 & 9	36.60	39.48	2.88	5.78**	37.67	40.61	2.94	6.76**
9 & 10	39.32	42.15	2.83	6.00**	40.90	43.00	2.10	5.10**
10 & 11	42.13	44.39	2.26	5.24**	43.22	45.32	2.10	5.40**
11 & 12	44.55	45.82	1.27	3.43**	44.77	46.09	1.32	2.05**
12 & 13	45.79	47.58	1.79	4.33**	46.23	48.15	1.92	3.11**
13 & 14	47.32	49.79	1.97	3.86**	48.02	50.00	2.04	+3.03**
14 & 15	49.57	51.26	1.69	3.37**	50.02	51.76	1.74	+2.55**
15 & 16	50.93	52.00	1.07	+2.19*	51.68	52.80	1.12	1.75**

Cond -

+ One-tailed t - test

Table A-5 continued.

AGE IN MONTHS	BOYS MEANS EARLIER	BOYS MEANS LATER	BOYS D	BOYS t	GIRLS MEANS EARLIER	GIRLS MEANS LATER	GIRLS D	GIRLS t
16 & 17	52.03	53.30	1.27	2.00**	52.43	53.61	1.18	1.87*
17 & 18	53.27	53.95	0.68	1.47	53.77	54.77	1.00	2.32*
18 & 19	54.02	54.50	0.48	1.24	54.56	54.85	0.29	0.66
19 & 20	54.10	54.64	0.54	1.10	54.56	55.29	0.73	1.54
20 & 21	54.77	55.40	0.63	2.29*	55.18	55.95	0.77	1.96*
21 & 22	55.49	56.21	0.72	1.95*	55.66	55.98	0.32	0.67
22 & 23	56.19	56.69	0.50	0.98	56.57	57.51	0.94	1.29
23 & 24	56.33	57.49	1.16	2.36**	57.59	58.38	0.79	0.95
24 & 25	57.28	58.50	1.22	2.19*	58.14	59.43	1.29	1.65*
25 & 26	58.26	59.23	0.97	1.53	59.54	60.71	1.17	1.53
26 & 27	59.39	60.68	1.29	2.14*	60.24	61.32	1.08	1.38
27 & 28	60.91	62.02	1.11	1.80*	61.53	63.06	1.53	1.87*
28 & 29	61.84	62.55	0.71	1.19	61.84	63.44	1.60	1.96*
29 & 30	62.21	64.05	1.84	3.43**	63.75	64.47	0.72	1.10

TABLE A-6 : AGE PLACEMENTS (IN MONTHS) OF MOTOR ITEMS ACCORDING TO DIFFERENT PERCENTAGES OF SAMPLE PASSING EACH ITEM

ITEM No.	PERCENT PASS												
	3	5	10	20	30	40	50	60	70	80	90	95	97
1	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	1.10
4	-	-	-	-	-	-	-	-	-	-	-	-	1.65
5	-	-	-	-	-	-	-	-	-	-	-	1.70	1.99
6	-	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	1.29	1.64
9	-	-	-	1.16	1.40	1.64	1.80	2.15	2.45	2.75	3.15	3.50	3.75
10	-	-	-	1.03	1.10	1.34	1.49	1.65	1.80	1.96	2.52	2.80	3.11
11	-	-	-	-	-	-	-	-	-	-	2.21	2.89	3.46
12	-	-	1.07	1.29	1.51	1.72	1.94	2.35	2.85	3.27	3.67	3.87	3.95
13	-	-	1.09	1.26	1.43	1.60	1.77	1.94	2.10	2.46	2.74	2.80	2.94
14	1.08	1.10	1.27	1.53	1.80	2.05	2.25	2.44	2.64	2.84	3.15	3.50	3.75
15	-	-	1.10	1.73	2.11	2.32	2.54	2.75	2.97	3.32	3.69	3.87	3.95

Contd.

Table A-6 : continued.

ITEM NO.	PERCENT PASS 3.	5	10.0	20	30	40	50.0	60.	70.	80.	90.	95.	97.
16	1.24	1.40	1.90	2.17	2.39	2.61	2.82	3.06	3.33	3.61	3.88	4.22	4.69
17	1.30	1.66	2.06	2.31	2.56	2.80	3.05	3.30	3.54	3.79	4.14	4.63	4.99
18	-	-	1.74	2.44	2.91	3.19	3.42	3.65	3.88	4.32	4.96	5.54	5.79
19	2.07	2.19	2.49	3.02	3.18	3.34	3.39	3.65	3.81	3.97	4.49	4.81	4.94
20	2.51	2.85	3.11	3.39	3.67	3.95	4.22	4.49	4.77	5.11	5.80	6.57	6.91
21	3.25	3.41	3.83	4.15	4.34	4.53	4.72	4.92	5.10	5.50	5.82	5.98	6.34
22	3.03	3.13	3.39	3.91	4.26	4.57	4.83	5.10	5.47	5.76	6.15	6.67	6.88
23	3.31	3.52	4.01	4.24	4.46	4.69	4.92	5.17	5.44	5.71	5.97	6.61	6.92
24	3.47	3.70	4.12	4.37	4.65	4.92	5.15	5.35	5.56	5.76	5.97	6.57	6.91
25	3.21	3.24	3.69	4.15	4.42	4.70	4.97	5.21	5.45	5.60	5.92	6.25	6.55
26	4.03	4.21	4.51	5.04	5.23	5.43	5.62	5.82	6.03	6.40	6.77	6.95	7.13
27	4.16	4.30	4.66	5.10	5.20	5.47	5.65	5.84	6.06	6.51	6.96	7.52	7.77
28	5.01	5.06	5.19	5.45	5.70	5.96	6.19	6.42	6.65	6.88	7.30	7.78	7.94
29	2.71	3.04	3.26	3.71	4.25	4.98	5.39	5.80	6.36	7.15	8.27	8.89	9.97
30	5.14	5.27	5.58	6.06	6.26	6.45	6.64	6.84	7.07	7.47	7.88	8.42	8.86

Contd..

Table A-6 : Continued.

ITEM NO.	PERCENT PASS												
	3.	5	10.	20	30.	40.	50	60.	70	80	90	95.	97.
31	5.02	5.12	5.37	5.88	6.14	6.31	6.49	6.67	6.85	7.09	7.76	8.48	9.19
32	5.02	5.13	5.40	5.94	6.16	6.33	6.50	6.68	6.85	7.08	7.70	8.07	8.78
33	5.07	5.16	5.30	5.82	6.20	6.55	6.90	7.37	7.91	8.47	9.09	9.74	10.00
34	4.24	4.45	4.90	5.50	5.99	6.29	6.58	6.87	7.19	7.54	7.89	8.49	8.99
35	5.71	6.03	6.25	6.68	7.05	7.24	7.43	7.62	7.80	7.99	8.60	8.91	9.19
36	3.68	4.08	4.49	5.12	5.44	5.76	6.09	6.49	6.88	7.38	7.93	8.64	8.99
37	5.83	6.10	6.45	7.09	7.49	7.89	8.22	8.52	8.83	9.33	10.15	10.75	10.99
38	6.30	6.55	7.07	7.55	8.01	8.28	8.55	8.82	9.20	9.85	10.52	10.86	10.99
39	6.00	6.22	6.76	7.31	7.70	8.00	8.42	8.77	9.24	10.01	10.77	11.47	11.95
40	6.70	7.03	7.26	7.72	8.10	8.33	8.57	8.81	9.09	9.55	10.01	10.65	10.91
41	6.06	6.27	6.78	7.35	7.79	8.13	8.37	8.62	8.86	9.25	9.83	10.35	10.69
42	6.73	7.08	7.33	7.99	8.50	9.01	9.41	9.80	10.22	10.67	11.46	12.32	12.68
43	7.65	8.02	8.31	8.89	9.21	9.48	9.74	10.04	10.43	10.85	11.56	12.03	13.04
44	7.84	8.08	8.36	8.90	9.20	9.44	9.68	9.20	10.28	10.70	11.46	12.41	12.87
45	8.26	8.54	9.11	9.73	10.19	10.51	10.83	11.41	12.20	12.85	14.05	15.22	15.95

Contd..

Table A-6 : Continued.

ITEM NO.	PERCENT PASS 3.	5	10.	20.	30.	40.	50.	60.	70.	80.	90.	95.	97.
46	9.85	10.08	10.37	10.95	11.65	12.18	12.52	12.86	13.40	14.12	15.62	16.72	17.44
47	9.07	9.30	9.86	10.61	11.28	11.90	12.33	12.72	13.26	14.14	14.96	16.51	17.29
48	9.51	9.93	10.48	11.29	11.88	12.25	12.56	12.87	13.48	14.39	15.56	16.29	16.69
49	10.57	10.95	11.51	12.21	12.59	12.97	13.44	13.93	14.64	15.51	16.50	17.03	17.72
50	11.15	11.61	12.16	12.64	13.12	13.59	14.06	14.54	15.03	15.83	16.69	17.72	19.54
51	11.89	12.12	12.51	13.17	13.63	14.11	14.62	15.17	15.82	16.79	17.71	18.79	19.52
52	11.89	12.12	12.51	13.17	13.67	14.17	14.68	15.25	15.91	16.95	17.74	18.79	19.52
53	12.19	12.39	12.90	13.89	14.49	15.05	15.71	16.37	17.04	17.92	18.92	21.14	24.37
54	12.49	12.82	13.47	14.38	15.08	16.07	16.53	16.99	17.70	18.97	20.49	21.79	24.54
55	14.16	14.69	16.18	16.69	17.26	17.92	18.96	20.27	21.44	24.10	26.87	28.43	29.23
56	12,28	12.57	13.39	15.40	16.39	19.46	20.44	22.90	26.27	28.68	-	-	-
57	19.97	21.04	21.49	22.29	22.97	23.68	24.39	25.09	25.82	27.19	29.62	-	-
58	19.48	20.38	21.29	21.92	22.67	23.34	23.95	24.87	25.84	27.55	29.04	-	-
59	19.23	19.80	21.43	22.71	24.14	24.62	26.08	27.05	27.95	29.76	-	-	-
60	20.99	22.43	24.23	26.20	26.99	27.90	28.70	-	-	-	-	-	-

Contd..

Table A-6 : continued.

ITEM No.	PERCENT PASS												
	3.0	5.	10	20.	30.	40.	50.	60.	70.	80.	90.	95	97.5
61	18.65	20.80	21.82	24.06	24.67	25.59	26.46	27.19	28.04	29.03	-	-	-
62	19.93	21.06	21.75	24.06	24.71	25.87	26.57	27.26	28.11	29.03	-	-	-
63	21.44	24.05	25.13	26.43	27.41	28.64	29.48	-	-	-	-	-	-
64	20.47	21.19	21.96	23.59	24.68	26.00	26.80	28.20	29.16	29.72	-	-	-
65	21.13	21.49	23.64	24.49	25.07	26.08	26.58	27.13	28.38	29.86	-	-	-
66	24.36	26.41	27.17	28.53	29.39	29.93	-	-	-	-	-	-	-
67	15.51	16.24	20.11	25.41	29.42	-	-	-	-	-	-	-	-

TABLE A-7 :MEAN MOTOR SCORES WITH THEIR STANDARD DEVIATIONS FOR BOYS, GIRLS AND TOTAL GROUPS OF AGES 1-15 MONTHS FROM LOWER S-E GROUP IN BARODA (URBAN).

AGE IN MONTHS	BOYS N	BOYS MEAN	BOYS S.D.	GIRLS N	GIRLS MEAN	GIRLS S.D.	TOTAL GROUP N	TOTAL GROUP MEAN	TOTAL GROUP S.D.
1	28	12.25	3.36	31	12.23	2.86	59	12.24	3.08
2	33	14.76	3.13	36	14.56	2.74	69	14.65	2.91
3	44	16.86	2.42	28	17.36	3.65	72	17.06	2.92
4	31	21.06	3.13	40	21.55	3.15	71	21.34	3.09
5	42	23.86	2.68	34	25.29	3.01	76	24.50	2.89
6	52	28.58	3.34	24	30.21	3.09	76	29.09	3.33
7	43	32.70	3.26	35	34.49	4.22	78	33.50	3.80
8	34	36.12	2.89	37	36.84	4.27	71	36.49	3.67
9	33	39.08	2.98	42	40.60	4.33	75	39.93	3.85
10	39	41.31	2.58	34	42.32	2.90	73	41.78	2.76
11	42	43.79	2.71	35	43.63	2.68	77	43.71	2.68
12	49	44.16	3.24	25	45.52	4.90	74	44.62	3.90
13	39	46.08	3.18	36	46.83	4.14	75	46.44	3.67
14	43	48.67	3.58	27	48.67	3.23	70	48.67	3.43
15	37	48.95	3.98	37	49.30	3.72	74	49.12	3.33

TABLE A-8 : DIFFERENCES IN THE MEAN MOTOR SCORES OF BOYS AND GIRLS (B-G) OF AGES 1-15 MONTHS FROM LOWER S-E GROUP IN BARODA (URBAN) AND THEIR 't' VALUES.

AGE IN MONTHS	D^{+} (B-G)	σD	t
1	0.02	0.81	0.03
2	0.20	0.71	0.29
3	-0.50	0.71	0.70
4	-0.49	0.75	0.65
5	-1.44	0.65	2.22*
6	-1.63	0.81	2.03*
7	-1.79	0.85	2.11*
8	-0.72	0.87	0.82
9	-1.50	0.88	1.70
10	-1.02	0.64	1.58
11	0.16	0.62	0.25
12	-1.36	0.95	1.43
13	-0.76	0.85	0.89
14	0.00	0.85	0.00
15	-0.35	0.90	0.39

+ The means are given in Table A-7.

TABLE A-9 : DIFFERENCES IN THE MEAN MOTOR SCORES OF UPPER AND LOWER S-E GROUPS (U-L) IN BARODA (URBAN) OF AGES 1-15 MONTHS AND THEIR 't' VALUES.

AGE IN MONTHS	D[+] (U-L)	σ_D	t
1	-3.06	0.42	7.31**
2	-2.23	0.36	6.19**
3	-1.16	0.36	3.22**
4	-1.58	0.38	4.12**
5	-1.14	0.39	2.90**
6	-0.35	0.44	0.79
7	-0.03	0.46	0.07
8	0.57	0.42	1.37
9	0.20	0.51	0.39
10	0.78	0.37	2.13*
11	0.98	0.32	3.02**
12	1.16	0.40	2.91**
13	1.53	0.44	3.47**
14	0.84	0.48	1.76
15	1.94	0.46	4.18**

[+] The means are given in Tables A-1 and A-7.

TABLE A-10 : MEAN MOTOR SCORES WITH THEIR STANDARD DEVIATIONS OF THE TOTAL RURAL GROUP AND SUB-GROUPS OF BOYS AND GIRLS FROM 1-15 MONTHS

AGE IN MONTHS	BOYS			GIRLS			TOTAL GROUP		
	N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D.
1	18	11.28	2.14	20	12.40	1.79	38	11.87	2.02
2	29	14.41	2.21	22	14.95	2.32	51	14.65	2.25
3	23	18.57	2.41	29	18.72	2.40	52	18.65	2.38
4	25	20.76	2.13	26	20.04	3.04	51	20.39	2.63
5	28	23.32	2.71	21	24.38	3.04	49	23.78	2.87
6	20	26.45	3.38	24	27.38	3.91	44	26.95	3.67
7	33	34.21	3.51	18	33.78	3.72	51	34.06	3.55
8	24	37.33	3.69	26	36.54	3.88	50	36.92	3.77
9	28	39.68	3.09	23	38.30	3.72	51	39.06	3.43
10	29	42.24	3.33	17	41.82	4.17	46	42.09	3.63
11	21	45.14	1.93	13	43.92	3.68	34	44.68	2.75
12	23	45.00	3.26	12	44.75	1.48	35	44.91	2.76
13	25	47.84	2.94	21	47.38	3.39	46	47.63	3.38
14	11	49.82	4.92	14	47.14	3.86	25	48.32	4.47
15	15	51.00	3.48	15	50.13	3.02	30	50.57	3.23

TABLE A-11 : MEAN MOTOR SCORES WITH THEIR STANDARD DEVIATIONS OF UPPER AND LOWER S-E GROUPS FROM RURAL AREAS FOR 1-15 MONTHS

AGE IN MONTHS	UPPER			LOWER		
	N	MEAN	S.D.	N	MEAN	S.D.
1	6	13.00	2.37	32	11.66	1.91
2	14	14.79	1.89	37	14.59	2.40
3	15	18.73	2.02	37	18.62	2.54
4	10	18.70	1.49	41	20.80	2.69
5	16	23.38	2.42	33	23.97	3.09
6	14	27.43	3.30	30	26.73	3.86
7	18	34.67	3.24	33	33.73	3.72
8	21	37.76	4.00	29	36.31	3.55
9	17	39.06	2.82	34	39.06	3.73
10	25	42.40	3.69	21	41.71	3.61
11	20	44.45	3.07	14	45.00	2.29
12	13	45.69	1.97	22	44.45	3.08
13	18	47.56	4.02	28	47.68	2.97
14	11	48.18	3.82	14	48.43	5.06
15	18	50.78	3.25	12	50.25	3.33

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TABLE A-12 : DIFFERENCES IN MEAN/SCORES OF BOYS AND GIRLS (B-G) FROM RURAL AREAS FOR 1-15 MONTHS AND THEIR 't' VALUES.

AGE IN MONTHS	D^+ (B-G)	σ_D	t
1	-1.12	0.64	1.76
2	-0.54	0.64	0.85
3	-0.16	0.67	0.24
4	0.72	0.74	0.98
5	-1.06	0.82	1.29
6	-0.93	1.11	0.83
7	0.43	1.05	0.41
8	0.79	1.07	0.74
9	1.37	0.95	1.44
10	0.42	1.12	0.37
11	1.22	0.96	1.27
12	0.25	1.00	0.25
13	0.46	1.01	0.46
14	2.68	1.75	1.53
15	0.87	1.19	0.73

+ Means are given in Table A-10.

TABLE A-13 : DIFFERENCES IN MEAN MOTOR SCORES OF UPPER AND LOWER S-E GROUPS (U-L) OF THE RURAL SAMPLE FROM 1-15 MONTHS AND THEIR 't' VALUES

AGE IN MONTHS	D^{+} (U-L)	σ_D	t
1	1.34	0.88	1.53
2	0.19	0.71	0.27
3	0.11	0.74	0.15
4	-2.10	0.89	2.37*
5	-0.59	0.88	0.68
6	0.70	1.20	0.58
7	0.94	1.04	0.90
8	1.45	1.07	1.35
9	0.00	1.03	0.00
10	0.69	1.08	0.63
11	-0.55	0.97	0.57
12	1.24	0.96	1.30
13	-0.12	1.03	0.12
14	-0.25	1.84	-0.13
15	0.53	1.22	0.43

+ Means are in Table A-11

TABLE A-14 : DIFFERENCES IN MEAN MOTOR SCORES OF BOYS IN THE UPPER AND LOWER S-E GROUPS (U-L) IN BARODA (URBAN), WITH THEIR 't' VALUES.

AGE IN MONTHS	D^+ (U-L)	σ_D	t
1	-3.19	0.61	5.23**
2	-2.49	0.51	4.91**
3	-1.19	0.43	2.77**
4	-1.52	0.52	2.91**
5	-0.99	0.49	2.03*
6	-0.30	0.55	0.55
7	0.15	0.57	0.26
8	0.43	0.54	0.80
9	0.63	0.83	0.76
10	0.80	0.52	1.54
11	0.67	0.45	1.49
12	1.48	0.45	3.29**
13	1.55	0.55	2.84**
14	0.73	0.60	1.22
15	1.75	0.63	2.78**

+ Means are given in Tables A-1 and A-7.

TABLE A-15 : DIFFERENCES IN MEAN MOTOR SCORES OF GIRLS IN THE UPPER AND LOWER S-E GROUPS(U-L) IN BARODA (URBAN) WITH THEIR 't' VALUES

AGE IN MONTHS	D+ (U-L)	σ_D	t
1	-2.88	0.58	4.93**
2	-1.88	0.53	3.58**
3	-1.06	0.65	1.64
4	-1.53	0.58	2.66**
5	-1.27	0.62	2.06*
6	-0.84	0.74	1.14
7	-0.19	0.71	0.27
8	0.88	0.64	1.39
9	0.06	0.60	0.10
10	0.95	0.48	1.99*
11	1.38	0.46	2.99**
12	0.47	0.76	0.62
13	1.54	0.70	2.19*
14	1.01	0.80	1.27
15	2.30	0.69	3.33**

+ Means are given in Tables A-1 and A-7.

TABLE A-16 : DIFFERENCES IN MEAN MOTOR SCORES OF BOYS FROM (1) UPPER S-E GROUP IN BARODA (URBAN) AND (2) ALL S-E CLASSES IN RURAL AREAS, WITH THEIR 't' VALUES.

AGE IN MONTHS	D^+ (1)-(2)	σD	t
1	-2.22	0.44	5.01**
2	-2.14	0.45	4.81**
3	-2.90	0.53	5.47**
4	-1.22	0.48	2.56*
5	-0.45	0.57	0.79
6	1.83	0.77	2.37*
7	-1.36	0.64	2.14*
8	-0.78	0.65	1.20
9	0.04	0.89	0.05
10	-0.13	0.62	0.21
11	-0.68	0.55	1.25
12	0.64	0.56	1.14
13	-0.21	0.62	0.34
14	-0.42	1.06	0.40
15	-0.30	0.85	0.35

+ Means are given in Tables A-1 and A-10

TABLE A-17 : DIFFERENCES IN MEAN MOTOR SCORES OF GIRLS FROM (1) UPPER S-E GROUP IN BARODA (URBAN) AND (2) ALL S-E CLASSES IN RURAL AREA, WITH THEIR 't' VALUES.

AGE IN MONTHS	D^+ (1) - (2)	σD	t
1	-3.05	0.40	7.57**
2	-2.27	0.52	4.38**
3	-2.42	0.49	4.95**
4	-0.02	0.63	0.03
5	-0.36	0.73	0.50
6	1.99	0.79	2.52*
7	0.52	0.83	0.63
8	1.18	0.66	1.80
9	2.36	0.62	3.81**
10	1.[illegible]5	0.68	2.14*
11	1.09	0.70	1.56
12	1.24	0.74	1.67
13	0.99	0.81	1.21
14	2.54	1.07	2.38*
15	1.47	0.91	1.61

+ Means are given in Tables A-1 and A-10

TABLE A-18 : DIFFERENCES IN MEAN MOTOR SCORES OF TOTAL GROUPS FROM (1) UPPER S-E GROUP IN BARODA (URBAN) AND (2) UPPER S-E GROUP IN RURAL AREAS.

AGE IN MONTHS	D^+ (1)-(2)	σ_D	t
1	-3.82	0.50	7.648**
2	-2.37	0.52	4.532**
3	-2.83	0.56	5.046**
4	1.06	0.72	1.474
5	-0.02	0.71	-0.028
6	1.31	0.88	1.489
7	-1.20	0.76	1.570
8	-0.70	0.64	-1.087
9	1.07	0.90	1.185
10	0.16	0.58	0.275
11	0.24	0.55	0.440
12	0.09	0.67	0.135
13	0.41	0.75	0.545
14	1.33	1.04	1.275
15	0.28	0.78	0.359

+ Means are given in Tables A-1 and A-11.

TABLE A-19 : DIFFERENCES IN MEAN MOTOR SCORES OF (1) TOTAL UPPER S-E GROUP IN BARODA (URBAN) AND (2) AND TOTAL RURAL GROUP WITH THEIR 't' VALUES FOR 1-15 MONTHS

AGE IN MONTHS	D^{+} (1)-(2)	σ_D	t
1	-2.69	0.31	8.773**
2	-2.23	0.34	6.598**
3	-2.75	0.36	7.677**
4	-0.63	0.39	1.610
5	-0.42	0.46	0.920
6	1.79	0.55	3.234 **
7	-0.59	0.51	1.157
8	0.14	0.47	0.300
9	1.07	0.57	1.876
10	0.47	0.47	1.005
11	0.01	0.43	0.023
12	0.87	0.45	1.950
13	0.34	0.50	0.675
14	1.19	0.75	1.591
15	0.49	0.62	0.787

+ The means are given in Tables A-1 and A-10.

TABLE A-[illegible] : DIFFERENCES IN MEAN MOTOR SCORES OF TOTAL GROUPS OF (1) LOWER S-E GROUP IN BARODA (URBAN) AND (2) LOWER S-E GROUP IN RURAL AREAS.

AGE IN MONTHS	D^{+} (1)-(2)	σ_D	t
1	0.58	0.60	0.97
2	0.06	0.56	0.11
3	-1.56	0.57	2.76**
4	0.54	0.58	0.93
5	0.53	0.61	0.86
6	2.36	0.75	3.14**
7	-0.23	0.78	0.29
8	0.18	0.80	0.23
9	0.87	0.79	1.10
10	0.07	0.73	0.10
11	-1.29	0.76	1.69
12	0.17	0.91	0.19
13	-1.24	0.77	1.60
14	0.24	1.09	0.22
15	-1.13	1.17	0.96

+ The means are given in Tables A-7 and A-11.

TABLE A-21 : MEANS AND STANDARD DEVIATIONS OF MENTAL PERFORMANCE SCORES FOR BOYS, GIRLS AND TOTAL GROUP OF BABIES OF AGE 1 to 30 MONTHS

AGE IN MONTHS	BOYS			GIRLS			TOTAL GROUP		
	N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D.
1	34	16.88	4.01	26	17.39	2.23	60	17.10	3.34
2	66	25.40	3.45	38	26.68	3.13	104	25.92	3.37
3	76	35.78	4.17	43	37.74	3.75	119	36.49	4.11
4	68	47.19	4.54	56	48.02	5.97	124	47.56	5.23
5	85	58.21	6.19	64	61.09	5.67	149	59.45	6.12
6	96	70.51	6.30	70	72.00	5.35	166	71.14	5.95
7	94	79.15	3.52	70	80.31	3.16	164	79.65	3.41
8	97	83.92	2.66	76	84.67	2.67	173	84.25	2.68
9	95	87.46	4.27	74	89.03	2.95	169	88.15	3.82
10	103	91.78	3.96	66	94.94	4.24	169	93.01	4.34
11	100	97.94	4.43	72	99.07	4.44	172	98.41	4.46
12	105	102.97	4.96	73	103.56	4.35	178	103.21	4.72
13	88	107.98	4.49	76	108.96	4.47	164	108.43	4.49
14	98	112.44	3.37	68	113.21	4.54	166	112.75	3.90
15	106	114.82	3.97	72	116.51	4.05	178	115.51	4.41

Table A-21 continued.

AGE IN MONTHS	BOYS			GIRLS			TOTAL GROUP		
	N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D.
16	84	118.48	4.05	56	120.77	5.01	140	119.39	4.58
17	77	122.39	4.55	61	123.26	6.09	138	122.78	5.28
18	75	124.38	5.06	61	127.16	6.15	136	125.90	5.67
19	81	128.36	6.27	50	130.52	7.09	131	129.20	6.65
20	80	130.40	7.64	51	132.90	7.54	131	131.37	7.67
21	75	133.21	7.36	57	134.07	8.00	132	133.58	7.62
22	71	133.08	8.48	56	138.45	8.82	127	136.24	8.60
23	76	140.72	8.03	49	142.10	9.09	125	141.26	8.46
24	75	144.04	7.35	51	145.06	9.59	126	144.43	8.30
25	70	148.13	7.54	49	150.20	7.75	119	148.98	7.66
26	71	151.01	7.33	49	152.06	7.46	120	151.44	7.37
27	74	153.34	6.18	42	154.40	6.53	116	153.72	6.30
28	69	154.36	6.47	43	156 00	5.60	112	155.29	6.18
29	75	156.57	4.76	44	157.25	4.76	119	156.82	4.75
30	69	156.79	4.66	45	157.42	5.27	114	157.16	4.89

TABLE A-22 : SIGNIFICANCE OF DIFFERENCES IN THE MEAN MENTAL SCORES OF BOYS AND GIRLS FOR AGES 1-30 MONTHS.

AGE IN MONTHS	+ D (B-G)	σ_D	t
1	-0.50	0.87	0.57
2	-1.20	0.68	1.76
3	-1.97	0.77	2.56 *
4	-0.83	0.94	0.88
5	-2.88	0.99	2.92 **
6	-1.49	0.93	1.60
7	-1.17	0.53	2.19 *
8	-0.75	0.41	1.85
9	-1.56	0.58	2.69**
10	-3.16	0.64	4.93**
11	-1.13	0.69	1.65
12	-0.59	0.72	0.82
13	-0.98	0.70	1.40
14	-0.77	0.61	1.25
15	-1.69	0.66	2.55*

contd..

+ Means are given in Table A-21.

Table A-22 continued :

AGE IN MONTHS	D^+ (B-G)	σ_D	t
16	-2.29	0.77	2.98**
17	-0.87	0.91	0.96
18	-2.28	0.96	2.38*
19	-2.14	1.19	1.80
20	-2.50	1.36	1.84
21	-0.86	1.34	0.64
22	-0.36	1.54	0.23
23	-1.38	1.55	0.89
24	-0.96	1.51	0.64
25	-2.08	1.42	1.46
26	-1.05	1.37	0.76
27	-1.07	1.22	0.88
28	-1.14	1.20	0.95
29	-0.68	0.90	0.75
30	-0.44	0.94	0.46

+ The means are given in Table A-21.

TABLE A-23 : PERCENTILE SCORES ON MENTAL SCALE FOR BOYS

AGE IN MONTHS	PERCENTILE SCORES						
	3	10	25	50	75	90	97
1	9.34	11.74	14.17	16.88	19.59	22.02	24.42
2	18.99	21.06	23.15	25.48	27.81	29.90	31.97
3	27.94	30.43	32.97	35.72	38.59	41.13	43.62
4	38.65	41.37	44.13	47.19	50.25	53.01	55.73
5	46.57	50.27	54.03	58.21	62.39	66.15	69.85
6	58.66	62.43	66.26	70.51	74.76	78.59	82.36
7	72.53	74.64	76.77	79.15	81.53	83.66	85.77
8	78.92	80.51	82.12	83.92	85.72	87.33	88.92
9	79.43	81.99	84.58	87.46	90.34	92.93	95.49
10	84.33	85.70	89.11	91.78	94.45	96.86	99.23
11	89.61	92.26	94.95	97.94	100.93	103.62	106.27
12	93.64	96.61	99.62	102.97	106.32	109.33	112.30
13	99.53	102.22	104.95	107.98	111.01	113.74	116.43
14	106.10	108.12	110.17	112.44	114.71	116.76	118.78
15	107.35	109.73	112.14	114.82	117.50	119.91	122.29

Contd..

Table A-23 continued.

AGE IN MONTHS	PERCENTILE SCORES 3	10	25	50	75	90	97
16	110.86	113.29	115.75	118.48	121.21	123.67	126.10
17	113.83	116.56	119.32	122.39	125.46	128.22	130.95
18	115.30	118.39	121.46	124.88	128.30	131.37	134.40
19	116.59	120.34	124.15	128.38	132.61	136.42	140.17
20	116.83	120.61	125.24	130.40	135.56	140.19	144.77
21	119.37	123.77	128.24	133.21	138.18	142.65	147.05
22	122.13	127.21	132.36	138.08	143.80	148.95	154.03
23	125.62	130.43	135.30	140.72	146.14	151.01	155.82
24	130.21	134.62	139.06	144.04	149.00	153.46	157.87
25	133.95	138.46	143.04	148.13	153.22	157.80	162.31
26	137.22	141.61	146.06	151.01	155.96	160.41	164.80
27	141.72	145.42	149.17	153.34	157.51	161.26	164.96
28	142.69	146.57	150.49	154.86	159.23	163.15	167.03
29	147.62	150.47	153.36	156.57	159.78	162.67	165.52
30	148.22	151.02	153.84	156.99	160.14	162.96	165.76

TABLE A-24 : PERCENTILE SCORES ON MENTAL SCALE FOR GIRLS

AGE IN MONTHS	PERCENTILE SCORES 3	10	25	50	75	90	97
1	13.19	14.52	15.87	17.33	18.89	20.24	21.57
2	20.79	22.67	24.57	26.68	28.79	30.69	32.57
3	30.69	32.93	35.21	37.74	40.27	42.55	44.79
4	36.79	40.37	43.99	48.02	52.05	55.67	59.25
5	50.42	53.02	57.26	61.09	64.92	68.36	71.76
6	61.94	65.14	68.39	72.00	75.61	78.06	82.06
7	74.37	76.26	78.18	80.31	82.44	84.36	86.25
8	79.65	81.25	82.87	84.67	86.47	88.09	89.69
9	83.40	85.25	87.04	89.03	91.02	92.81	94.58
10	86.95	89.50	92.08	94.94	97.80	100.33	102.92
11	90.72	93.38	96.07	99.07	102.07	104.76	107.42
12	95.30	97.90	100.62	103.56	106.50	109.14	111.74
13	100.55	103.23	105.94	108.96	111.98	114.69	117.37
14	104.67	107.39	110.15	113.21	116.27	119.03	121.75
15	107.39	110.29	113.24	116.51	119.73	122.73	125.63

Contd...

Table A-24 continued.

AGE IN MONTHS	PERCENTILE SCORES						
	3	10	25	50	75	90	97
16	111.35	114.35	117.39	120.77	124.15	127.19	130.19
17	111.80	115.45	119.15	123.26	127.37	131.07	134.72
18	115.59	119.28	123.01	127.16	131.31	135.04	138.73
19	117.18	121.43	125.73	130.52	135.31	139.61	143.86
20	118.72	123.23	127.81	132.90	137.99	142.57	147.08
21	119.02	123.81	128.67	134.07	139.47	144.33	149.12
22	121.86	127.14	132.50	138.45	144.40	149.76	155.04
23	125.00	130.45	135.96	142.10	148.24	153.75	159.20
24	126.96	132.71	138.53	145.00	151.47	157.29	163.04
25	135.62	140.26	144.97	150.20	155.43	160.14	164.78
26	138.03	142.50	147.02	152.06	157.10	161.62	166.09
27	142.12	146.03	149.99	154.40	158.81	162.77	166.68
28	145.32	148.72	152.17	156.00	159.83	163.28	166.68
29	148.30	151.15	154.04	157.25	160.46	163.35	166.20
30	147.51	150.66	153.86	157.42	160.98	164.18	167.33

TABLE A-25 : MENTAL MEAN SCORES OF THE RELATED SAMPLES FROM UPPER S-E GROUP IN BARODA (URBAN) FOR SUCCESSIVE PAIRS OF AGE GROUPS AND THEIR DIFFERENCES WITH 't' VALUES+ FOR BOYS AND GIRLS.

AGE IN MONTHS	BOYS				GIRLS			
	MEANS				MEANS			
	EARLIER	LATER	D	t	EARLIER	LATER	D	t
1 & 2	17.10	25.76	8.66	6.95**	17.88	28.00	10.12	13.26**
2 & 3	26.02	35.62	9.60	13.17**	25.90	37.75	11.85	14.39**
3 & 4	35.58	45.95	10.37	10.34**	37.90	49.05	11.15	8.82**
4 & 5	46.96	59.09	12.13	11.03**	47.88	62.15	14.27	9.80**
5 & 6	58.41	71.00	12.59	10.05**	61.10	72.80	11.70	8.85**
6 & 7	70.95	79.51	8.56	10.35**	72.51	80.38	7.87	9.05**
7 & 8	79.39	84.44	5.05	10.62**	80.30	84.77	4.47	8.16**
8 & 9	84.09	87.46	3.37	6.64**	84.75	88.88	4.13	8.34**
9 & 10	87.10	91.54	4.44	7.81**	89.24	94.78	5.54	7.26**
10 & 11	91.81	98.03	6.22	9.05**	95.17	99.73	4.56	4.96**
11 & 12	97.94	103.09	5.15	6.71**	98.60	103.93	5.33	5.68**
12 & 13	103.33	108.15	4.82	5.84**	103.57	108.98	5.41	5.83**
13 & 14	108.47	113.21	4.74	6.49**	109.08	113.94	4.86	5.67**
14 & 15	112.74	115.46	2.72	4.41**	113.51	117.47	3.96	3.95**

+ One - tailed t - test

Contd. -

Table A-25 continued.

AGE IN MONTHS	BOYS MEANS EARLIER	BOYS MEANS LATER	BOYS D	BOYS t	GIRLS MEANS EARLIER	GIRLS MEANS LATER	GIRLS D	GIRLS t
15 & 16	115.10	118.37	3.27	4.69**	117.80	121.41	3.61	3.45**
16 & 17	118.88	122.45	3.57	4.67**	120.84	124.39	3.55	2.87**
17 & 18	122.09	125.55	3.46	4.04**	123.57	127.38	3.81	3.16**
18 & 19	125.31	128.69	3.38	3.20**	127.46	131.05	3.59	2.27*
19 & 20	128.22	131.59	3.37	2.62**	130.85	133.32	2.47	1.26
20 & 21	130.68	134.12	3.44	2.38*	132.55	135.48	2.93	1.71*
21 & 22	133.26	138.00	4.74	3.03**	133.94	137.68	3.74	2.11*
22 & 23	138.75	142.17	3.42	2.09*	139.92	143.54	3.62	1.70*
23 & 24	140.77	144.88	4.11	2.86**	143.27	146.43	3.16	1.51
24 & 25	144.40	148.38	3.98	2.95**	148.14	151.69	3.55	1.98*
25 & 26	148.40	151.89	3.49	2.64**	150.86	153.11	2.25	1.23
26 & 27	151.53	154.27	2.74	2.29*	153.29	154.79	1.50	1.08
27 & 28	154.09	155.80	1.71	1.59	155.81	157.38	1.57	1.41
28 & 29	155.80	157.79	1.99	2.13*	156.09	157.91	1.82	1.51
29 & 30	157.05	157.59	0.54	0.69	157.00	157.91	0.91	0.90

TABLE A-26 : AGE PLACEMENTS IN MONTHS OF MENTAL ITEMS ACCORDING TO DIFFERENT PERCENTAGES OF SAMPLE PASSING EACH ITEM

ITEM NO.	PERCENT PASS												
	3.	5	10	20	30.	40.	50.	60.	70.	80	90.	95	97
1	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-	1.40
8	-	-	-	-	-	-	-	-	-	-	-	-	1.14
9	-	-	-	-	-	-	-	1.16	1.43	1.79	2.26	2.63	2.73
10	-	-	-	-	-	-	-	-	-	-	-	1.40	1.64
11	-	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	1.11	1.44	1.77	2.13	2.57	2.70	2.87
13	-	-	-	-	-	-	-	-	-	-	-	1.96	2.38
14	-	-	-	-	-	-	-	-	-	-	1.38	1.76	1.92
15	-	-	-	-	-	1.13	1.40	1.67	1.94	2.31	2.71	2.90	2.98

Contd..

Table A-26 continued.

ITEM NO.	PERCENT PASS 3.	5.	10	20.	30.	40	50	60	70	80	90	95.	97.
16	-	-	-	-	-	-	-	-	1.09	1.64	2.26	2.63	2.78
17	-	-	-	-	-	-	-	-	1.10	1.41	1.72	1.88	1.94
18	-	-	-	-	1.03	1.19	1.35	1.52	1.68	1.85	2.05	2.53	2.72
19	-	-	-	-	-	1.10	1.30	1.50	1.71	1.91	2.35	2.68	2.81
20	-	-	-	1.04	1.18	1.31	1.45	1.58	1.71	1.85	1.98	2.52	2.81
21	-	-	-	1.19	1.42	1.64	1.87	2.17	2.57	2.97	3.52	3.81	3.92
22	-	-	-	-	1.03	1.19	1.36	1.53	1.69	1.86	2.16	2.66	2.87
23	-	1.08	1.31	1.77	2.13	2.38	2.63	2.88	3.15	3.44	3.73	3.88	3.94
24	1.02	1.05	1.12	1.27	1.42	1.57	1.72	1.86	2.03	2.41	2.78	2.97	3.29
25	1.09	1.14	1.29	1.58	1.87	2.11	2.31	2.51	2.72	2.92	3.37	3.69	3.81
26	1.13	1.22	1.43	1.87	2.14	2.34	2.55	2.75	2.95	3.28	3.64	3.82	3.89
27	-	-	-	1.09	1.22	1.35	1.48	1.61	1.74	1.87	2.00	2.58	2.83
28	-	1.02	1.10	1.25	1.40	1.55	1.70	1.85	2.00	2.44	2.89	3.34	3.60
29	1.06	1.10	1.20	1.40	1.60	1.80	1.00	2.24	2.48	2.72	2.96	3.45	3.71
30	1.45	1.74	2.06	2.25	2.44	2.63	2.82	3.01	3.28	3.55	3.82	3.95	4.12

Contd.

Table A-26 continued.

ITEM NO.	PERCENT PASS												
	3	5.	10.	20.	30	40.	50.	60.	70	80	90	95.	97
31	1.00	1.13	1.26	1.52	1.78	2.03	2.20	2.38	2.55	2.72	2.90	2.99	3.67
32	1.45	1.74	2.05	2.19	2.34	2.49	2.64	2.78	2.93	3.22	3.64	3.86	3.94
33	1.26	1.43	1.87	2.19	2.40	2.62	2.84	3.07	3.32	3.58	3.83	3.96	4.07
34	1.20	1.33	1.65	2.06	2.19	2.33	2.46	2.53	2.72	2.86	2.99	3.46	3.68
35	1.12	1.20	1.40	1.80	2.10	2.30	2.49	2.69	2.89	3.23	3.77	4.13	4.53
36	1.24	1.43	1.80	2.16	2.36	2.57	2.78	2.99	3.37	3.76	4.30	4.70	4.87
37	1.78	2.02	2.12	2.32	2.52	2.72	2.92	3.16	3.42	3.67	3.93	4.38	4.72
38	1.52	1.87	2.09	2.29	2.50	2.70	2.91	3.15	3.42	3.70	3.97	4.47	4.72
39	2.00	2.05	2.15	2.37	2.58	2.79	3.01	3.26	3.50	3.75	3.99	4.52	4.74
40	2.11	2.18	2.35	2.70	3.03	3.21	3.40	3.59	3.77	3.96	4.47	4.78	4.90
41	2.05	2.10	2.28	2.48	2.74	2.99	3.21	3.44	3.66	3.88	4.34	4.72	4.87
42	2.08	2.15	2.34	2.71	3.05	3.27	3.49	3.71	3.93	4.25	4.64	4.83	4.91
43	2.11	2.19	2.37	2.74	3.07	3.29	3.51	3.72	3.94	4.32	4.74	4.96	5.30
44	2.15	2.25	2.50	2.99	3.17	3.35	3.53	3.71	3.88	4.15	4.61	4.83	4.92
45	2.17	2.23	2.57	3.04	3.18	3.33	3.48	3.63	3.78	3.93	4.62	5.46	6.01

Contd..

Table A-26 continued :

ITEM No.	PERCENT PASS 3.	5.	10	20.	30.	40	50	60	70	80	90	95.	97
46	2.39	3.04	3.16	3.41	3.65	3.89	4.12	4.33	4.55	4.76	4.97	5.54	5.83
47	3.02	3.06	3.14	3.31	3.40	3.65	3.82	3.99	4.31	4.63	4.96	5.54	5.83
48	3.02	3.06	3.15	3.33	3.51	3.69	3.87	4.08	4.36	4.64	4.93	5.39	5.71
49	3.06	3.11	3.25	3.52	3.79	4.05	4.26	4.48	4.70	4.92	5.45	5.81	5.96
50	3.07	3.14	3.32	3.66	4.00	4.20	4.40	4.60	4.80	5.01	5.64	5.95	6.29
51	3.12	3.19	3.39	3.78	4.00	4.20	4.40	4.67	4.87	5.10	5.68	5.93	6.20
52	3.16	3.30	3.67	4.10	4.28	4.46	4.64	4.82	5.01	5.41	5.82	6.08	6.45
53	3.04	3.10	3.25	3.54	3.84	4.09	4.29	4.49	4.68	4.88	5.33	5.74	5.90
54	3.34	3.56	4.02	4.24	4.46	4.67	4.89	5.13	5.38	5.63	5.88	6.09	6.50
55	3.12	3.21	3.41	3.83	4.10	4.27	4.44	4.61	4.78	4.95	5.44	5.76	5.88
56	3.13	3.26	3.57	4.08	4.33	4.58	4.84	5.12	5.47	5.81	6.39	6.83	7.02
57	3.41	3.69	4.06	4.27	4.48	4.70	4.91	5.18	5.51	5.84	6.37	6.73	6.87
58	3.10	3.19	3.42	3.88	4.17	4.41	4.64	4.88	5.26	5.80	6.43	6.78	6.92
59	3.62	4.00	4.13	4.37	4.62	4.86	5.11	5.35	5.59	5.84	6.30	6.76	6.95
60	3.62	4.00	4.14	4.40	4.67	4.94	5.18	5.41	5.64	5.87	6.35	6.75	6.91

Contd.

Table A-26 continued :

ITEM No.	PERCENT PASS 3.	5	10.	20	30	40	50.	60.	70.	80	90	95.	97.
61	3.37	3.62	4.05	4.29	4.53	4.77	5.01	5.27	5.52	5.78	6.13	6.59	6.78
62	4.04	4.09	4.23	4.50	4.77	5.04	5.25	5.46	5.67	5.88	6.32	6.65	6.83
63	4.07	4.16	4.41	4.90	5,14	5.31	5.49	5.66	5.83	6.03	6.54	6.90	6.91
64	3.25	3.41	3.83	4.18	4.40	4.62	4.84	5.11	5.49	5.86	6.47	6.85	7.03
65	3.74	4.04	4.25	4.66	5.05	5.33	5.60	5.88	6.10	6.51	6.83	7.00	7.44
66	4.05	4.12	4.31	4.67	5.02	5.24	5.46	5.68	5.90	6.23	6.67	6.89	6.99
67	4.07	4.16	4.40	4.87	5.15	5.35	5.56	5.76	5.97	6.33	6.72	6.92	7.02
68	3.95	4.04	4.15	4.37	4.59	4.82	5.04	5.29	5.54	5.79	6.13	6.56	6.74
69	4.10	4.20	4.43	4.90	5.15	5.34	5.54	5.73	5.92	5.27	6.71	6.94	7.15
70	4.16	4.40	4.99	5.10	5.36	5.54	5.72	5.90	6.14	6.45	6.76	6.92	6.98
71	4.75	5.02	5.12	5.32	5.52	5.72	5.92	6.15	6.42	6.68	6.95	7.52	7.00
72	4.12	4.22	4.49	5.01	5.21	5.41	5.61	5.80	6.00	6.40	6.80	7.00	7.50
73	4.21	4.35	4.71	5.13	5.35	5.58	5.80	6.06	6.64	7.25	7.91	8.53	8.82
74	4.42	4.80	5.10	5.36	5.61	5.87	6.12	6.38	6.64	6.89	7.66	8.31	8.62
75	5.01	5.10	5.31	5.73	6.07	6.27	6.47	6.67	6.87	7.27	7.99	8.60	8.85

Table A-26 continued :

ITEM No.	PERCENT PASS												
	3.	5	10	20.	30.	40.	50.	60.	70.	80.	90	95.	97.
76	4.45	4.75	5.07	5.30	5.53	5.76	5.99	6.21	6.44	6.66	6.88	7.00	7.73
77	5.01	5.09	5.30	5.71	6.06	6.25	6.45	6.65	6.84	7.11	7.67	7.95	8.37
78	4.64	5.01	5.18	5.51	5.84	6.11	6.34	6.56	6.78	7.01	7.80	8.63	9.23
79	5.03	5.21	5.55	6.10	6.46	6.75	7.05	7.42	7.79	8.23	8.78	9.22	9.70
80	5.33	5.55	6.03	6.30	6.57	6.84	7.11	7.36	7.61	7.86	8.46	8.97	9.42
81	5.23	5.38	5.75	6.16	6.39	6.62	6.85	7.13	7.54	7.94	8.75	9.44	9.[illegible]7
82	5.23	5.43	5.92	6.30	6.63	6.95	7.39	7.84	8.31	8.80	9.42	9.77	9.91
83	6.00	6.09	6.33	6.79	7.15	7.42	7.69	7.97	8.32	8.68	9.26	10.32	10.74
84	5.12	5.36	5.97	6.27	6.54	6.81	7.09	7.36	7.64	7.91	8.49	8.85	9.00
85	5.71	6.09	6.67	7.35	7.83	8.39	8.93	9.39	9.79	10.35	11.11	11.65	11.86
86	6.03	6.11	6.34	6.78	7.10	7.31	7.52	7.72	7.93	8.29	8.74	8.96	9.64
87	6.09	6.24	6.61	7.19	7.60	8.00	8.29	8.57	8.85	9.48	10.61	11.34	11.68
88	7.09	7.20	7.48	7.99	8.31	8.62	8.93	9.29	9.66	10.06	10.94	11.80	12.24
89	7.31	7.51	8.02	8.89	9.38	9.81	10.22	10.60	10.99	11.54	12.17	12.64	12.83
90	7.12	7.22	7.48	7.99	8.33	8.67	9.01	9.33	9.65	9.97	11.15	11.85	12.24

Contd..

Table A-26 continued :

ITEM No.	PERCENT PASS 3	5	10	20	30.	40	50	60.	70.	80.	90	95.	97.
91	7.74	8.05	8.29	8.79	9.22	9.59	9.97	10.30	10.63	10.95	11.54	11.86	11.99
92	7.32	7.59	8.09	8.59	9.05	9.30	9.72	10.06	10.44	11.03	11.64	12.28	12.61
93	9.00	9.09	9.31	9.74	10.14	10.51	10.87	11.22	11.55	11.88	12.52	12.94	13.52
94	8.16	8.32	8.75	9.22	9.53	9.84	10.16	10.47	10.79	11.20	12.16	12.61	12.79
95	8.19	8.50	9.06	9.41	9.76	10.12	10.48	10.84	11.36	12.02	12.76	13.31	13.67
96	8.27	8.44	8.69	9.30	9.81	10.22	10.60	10.98	11.62	12.25	12.87	13.37	13.62
97	8.85	9.07	9.29	9.75	10.14	10.45	10.75	11.09	11.55	12.02	12.76	13.35	13.76
98	8.15	8.31	8.71	9.16	9.41	9.67	9.92	10.19	10.46	10.76	11.20	11.86	12.13
99	8.85	9.14	9.31	10.22	10.60	10.97	11.33	11.69	12.07	12.56	13.18	14.10	14.56
100	9.17	9.31	9.56	10.22	10.63	11.08	11.87	12.34	12.75	13.29	14.21	15.33	15.70
101	8.56	8.94	9.23	9.73	10.13	10.40	10.68	10.96	11.42	11.93	12.65	13.11	13.58
102	9.23	9.59	10.13	10.71	11.18	11.53	11.88	12.26	12.64	13.05	13.70	14.11	14.65
103	9.25	9.54	10.14	10.97	11.35	11.70	12.08	12.57	13.05	13.52	13.98	14.68	14.97
104	8.58	9.02	9.31	9.89	10.30	10.67	11.09	11.86	12.49	13.11	13.92	15.15	15.62
105	11.01	11.16	11.55	12.17	12.55	12.94	13.43	13.93	14.42	14.90	15.50	15.82	15.95

Contd..

Table A-26 continued.

ITEM No.						PERCENT PASS							
	3	5.	10	20	30	40	50	60	70	80	90.	95	97
106	10.28	10.51	11.03	11.46	11.89	12.22	12.50	12.79	13.11	13.50	13.89	15.19	15.51
107	9.13	9.24	9.51	10.03	10.35	10.67	10.98	11.51	12.04	12.56	12.96	13.62	13.91
108	9.31	9.57	10.10	10.66	11.16	11.58	11.88	12.42	12.84	13.90	15.50	15.94	16.93
109	11.10	11.40	12.15	13.26	13.88	14.55	15.11	15.43	15.75	16.22	17.23	17.72	17.92
110	11.01	11.16	11.55	12.26	12.86	13.31	13.71	14.20	14.90	15.40	16.09	16.73	16.99
111	12.04	12.14	12.41	12.93	13.92	14.41	14.85	15.23	15.58	15.93	17.10	17.68	17.91
112	10.59	11.02	11.30	11.86	12.31	12.72	13.13	13.57	14.01	15.09	15.73	16.14	16.54
113	10.69	11.06	11.37	11.99	12.35	12.71	13.05	13.33	13.61	13.89	15.34	15.92	16.36
114	11.16	11.42	12.03	12.58	13.12	13.59	14.10	14.94	16.17	16.97	17.89	18.66	19.07
115	11.38	11.64	12.14	12.79	13.25	13.63	13.88	14.66	15.27	15.84	16.78	18.05	18.75
116	11.12	11.32	11.82	12.28	12.63	12.97	13.25	13.52	13.79	14.20	15.09	15.73	15.98
117	13.99	14.13	14.47	15.10	15.60	16.09	16.51	16.93	17.54	18.19	18.89	19.56	19.88
118	11.09	11.37	12.02	12.45	12.87	13.28	13.67	14.07	14.50	14.94	16.67	17.63	18.31
119	13.24	13.66	14.35	15.23	15.86	16.50	17.14	17.79	18.35	18.87	21.22	21.73	21.93
120	12.74	13.16	13.76	14.58	15.19	15.64	16.15	16.84	18.07	18.92	21.17	21.77	22.20

Contd..

Table A-26 continued.

ITEM No.	3.	5	10	20.	30	40.	50	60.	70	80.	90.	95.	97.
	PERCENT PASS												
121	14.83	15.16	15.69	16.44	17.05	17.54	17.88	18.79	19.36	19.84	21.50	22.42	23.12
122	12.02	12.22	12.72	13.55	14.25	14.90	15.31	15.60	16.14	17.00	17.85	21.[illegible]	21.62
123	13.49	14.12	14.91	16.42	17.51	18.46	20.37	21.14	21.99	22.04	24.55	25.51	26.28
124	13.45	13.75	14.37	15.20	15.67	16.10	16.44	16.77	17.19	17.78	19.15	21.72	22.28
125	13.74	14.14	14.65	15.31	15.79	16.31	16.84	17.87	18.56	19.95	22.66	23.79	24.48
126	15.42	15.76	16.22	16.85	17.62	18.22	18.84	19.20	20.47	21.26	21.87	23.15	23.81
127	12.60	13.31	14.83	15.87	16.47	17.01	17.49	17.95	18.90	20.70	23.41	24.39	24.76
128	15.15	15.56	16.40	17.66	18.76	20.32	21.20	21.91	22.59	23.96	23.38	26.20	26.69
129	14.41	14.85	15.43	16.25	16.85	17.41	17.96	18.56	19.26	20.45	21.78	24.12	24.54
130	15.04	16.32	17.10	18.14	19.02	19.96	20.06	22.08	22.96	23.05	23.16	25.00	27.10
131	15.84	16.23	17.17	18.20	19.03	20.12	20.00	21.70	22.40	23.42	24.73	25.30	25.60
132	15.28	15.70	16.27	17.04	17.92	18.61	19.22	19.74	21.09	21.91	22.95	23.72	24.27
133	16.41	16.69	17.28	18.16	18.69	19.54	21.04	21.61	22.25	23.07	23.96	24.05	25.71
134	16.72	17.10	17.48	18.59	19.79	20.77	21.30	21.89	23.05	24.23	26.51	26.94	29.50
135	16.29	16.98	17.33	19.47	20.44	21.47	22.60	23.33	23.92	25.02	27.24	28.03	-

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Table A-26 continued.

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ITEM No.	PERCENT PASS 3	5	10	20.	30.	40.	50.	60	70.	80.	90.	95.	97.
136	16.11	16.36	16.90	17.83	19.03	20.08	20.83	21.31	21.71	22.00	23.78	26.20	26.60
137	16.79	17.37	19.10	21.48	23.17	24.44	26.10	27.30	28.89	-	-	-	-
138	15.77	16.59	17.73	18.67	20.09	20.60	21.23	22.22	23.13	24.20	26.39	28.13	28.83
139	16.05	16.73	18.11	20.88	21.76	22.55	23.53	25.03	25.86	28.68	-	-	-
140	16.04	16.58	17.77	20.01	20.91	21.58	22.75	23.97	24.67	25.00	27.94	-	-
141	17.07	18.24	19.82	21.48	22.57	23.93	24.48	24.97	25.85	27.95	-	-	-
142	16.79	17.90	21.44	22.34	23.30	24.96	26.44	28.40	-	-	-	-	-
143	18.20	18.72	19.85	21.52	23.03	23.83	24.53	25.36	26.46	27.50	-	-	-
144	17.37	18.11	19.02	21.25	22.29	24.04	24.44	24.85	26.35	27.80	-	-	-
145	17.62	18.15	19.23	20.49	21.24	21.73	22.32	23.04	23.50	23.96	25.02	26.41	26.90
146	18.97	21.87	24.27	25.59	27.66	28.81	-	-	-	-	-	-	-
147	16.54	17.32	19.18	21.26	21.90	23.40	24.08	24.59	25.54	26.75	29.03	-	-
148	18.01	18.44	19.78	21.55	22.80	24.23	24.76	25.52	26.88	27.88	-	-	-
149	17.77	18.54	20.09	21.08	21.78	22.38	22.93	23.54	24.16	24.80	26.45	28.73	-
150	18.98	19.35	21.06	21.71	22.61	23.48	24.25	25.04	26.27	27.90	-	-	-

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Table A-26 continued.

ITEM No.	PERCENT PASS												
	3.	5.	10	20	30	40	50	60	70.	[illegible]	[illegible]	[illegible]5	[illegible]7
151	18.97	19.43	20.35	21.43	22.21	23.06	23.77	24.32	24.7[illegible]	[illegible]	26.75	27.[illegible]7	[illegible].30
152	18.20	1[illegible].72	20.92	21.39	22.01	23.2[illegible]	23.7[illegible]	24.40	25.1[illegible]	[illegible]	28.	-	-
153	1[illegible].9[illegible]	21.[illegible]3	21.9[illegible]	24.07	24.75	26.2[illegible]	27.13	27.[illegible]	-	-	-	-	-
154	19.19	1[illegible].71	21.26	22.31	23.61	24.33	24.97	25.47	25.9[illegible]	27.[illegible]	2[illegible].32	2[illegible].93	-
155	1[illegible].9[illegible]	21.19	21.[illegible]6	24.43	25.63	27.11	29.00	-	-	-	-	-	-
156	18.4[illegible]	19.0[illegible]	21.0[illegible]	21.63	23.10	23.[illegible]2	24.34	24.32	25.[illegible]	26.7[illegible]	28.7[illegible]	-	-
157	19.93	21.49	22.10	[illegible]2.00	24.37	24.74	25.24	26.0[illegible]	27.07	27.7[illegible]	2[illegible].31	-	-
158	19.9[illegible]	21.35	22.53	24.00	24.91	26.39	27.4[illegible]	2[illegible].59	-	-	-	-	-
159	19.31	20.1[illegible]	21.2[illegible]	22.57	23.58	24.31	24.92	26.05	26.6[illegible]	28.20	-	-	-
160	18.97	20.00	21.82	23.57	24.57	25.22	25.6[illegible]	26.73	27.7[illegible]	2[illegible].77	-	-	-
161	26.37	-	-	-	-	-	-	-	-	-	-	-	-
162	20.31	2[illegible].07	23.39	24.89	25.6[illegible]	26.72	27.6[illegible]	29.17	29.[illegible]	-	-	-	-
163	19.47	21.41	22.84	24.57	25.25	25.[illegible]	27.12	28.40	29.55	-	-	-	-

TABLE A-27 : MEAN MENTAL SCORES WITH THEIR STANDARD DEVIATIONS OF THE TOTAL GROUP OF LOWER S-E CLASS IN BARODA (URBAN) AND OF THE SUB-GROUPS OF BOYS AND GIRLS OF 1-15 MONTHS

AGE IN MONTHS	BOYS			GIRLS			TOTAL GROUP		
	N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D.
1	23	20.57	5.11	31	21.61	5.26	59	21.12	5.17
2	33	27.91	4.73	36	28.31	4.40	69	28.12	4.57
3	44	34.89	4.22	28	35.32	6.06	72	35.06	4.93
4	31	44.10	6.49	40	45.68	7.91	71	44.99	7.32
5	42	57.59	7.35	34	58.53	7.52	76	58.01	7.39
6	52	70.46	6.80	24	69.00	6.85	76	70.00	6.81
7	43	77.36	5.46	35	77.91	5.73	78	77.72	5.55
8	34	81.91	4.47	37	81.73	6.47	71	81.82	5.56
9	33	87.42	7.46	42	87.29	6.93	75	87.35	7.13
10	39	90.51	5.56	34	90.68	5.56	73	90.59	5.52
11	42	97.29	6.37	35	96.97	5.74	77	97.14	6.06
12	49	101.37	6.51	25	101.84	5.84	74	101.53	6.25
13	39	104.31	5.01	36	103.64	6.23	75	103.99	5.60
14	43	109.12	5.67	27	108.07	6.16	70	108.71	5.84
15	37	111.27	5.42	37	111.41	4.41	74	111.34	4.91

TABLE A-28 : DIFFERENCES IN THE MEAN MENTAL SCORES OF BOYS AND GIRLS (B-G) OF AGES 1-15 MONTHS FROM LOWER S-E GROUP IN BARODA (URBAN) AND THEIR 't' VALUES.

AGE IN MONTHS	D^+ (B-G)	σ_D	t
1	-1.04	1.35	0.77
2	-0.40	1.11	0.36
3	-0.43	1.21	0.36
4	-1.58	1.75	0.90
5	-0.93	1.71	0.55
6	1.46	1.68	0.87
7	-0.36	1.27	0.28
8	0.18	1.33	0.14
9	0.14	1.67	0.08
10	-0.16	1.31	0.13
11	0.31	1.39	0.23
12	-0.47	1.55	0.31
13	0.67	1.30	0.51
14	1.04	1.44	0.72
15	-0.14	1.15	0.12

+ Means are given in Table A-27

TABLE A-29 : DIFFERENCES IN MEAN MENTAL SCORES OF UPPER AND LOWER S-E GROUPS (U-L) IN BARODA (URBAN) OF AGES 1-15 MONTHS AND THEIR 't' VALUES.

AGE IN MONTHS	D+ (U-L)	σD	t
1	-4.02	0.80	5.05**
2	-2.20	0.60	3.64**
3	1.43	0.66	2.16*
4	2.57	0.90	2.84**
5	1.44	0.93	1.55
6	1.14	0.86	1.32
7	1.93	0.58	3.33 **
8	2.43	0.53	4.60**
9	0.80	0.70	1.14
10	2.42	0.66	3.66**
11	1.27	0.69	1.85
12	1.68	0.72	2.33**
13	4.44	0.68	6.55**
14	4.04	0.65	6.22**
15	4.17	0.63	6.61**

+ Means are given in Tables A-21 and A-27.

TABLE A-30 : MEAN MENTAL SCORES WITH THEIR STANDARD DEVIATIONS OF THE TOTAL RURAL GROUP AND THE SUB-GROUPS OF BOYS AND GIRLS FROM 1-15 MONTHS.

AGE IN MONTHS	BOYS			GIRLS			TOTAL GROUP		
	N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D.
1	18	17.72	2.74	20	19.00	4.67	38	18.39	3.6[illegible]
2	29	22.69	4.[illegible]	22	24.82	5.5[illegible]	51	23.61	5.25
3	23	35.13	6.43	29	33.62	5.25	52	34.29	5.79
4	25	40.60	5.30	26	41.58	5.49	51	41.10	5.36
5	28	51.50	8.87	21	53.67	6.36	49	52.43	7.54
6	20	64.45	10.02	24	63.04	[illegible].30	44	63.68	9.04
7	33	77.21	5.44	18	77.22	5.95	51	77.[illegible]6	5.50
8	24	81.58	5.57	26	81.50	5.99	50	81.54	5.73
9	28	86.54	4.1[illegible]	23	86.30	6.17	51	86.43	5.08
10	29	90.45	5.82	17	90.06	6.40	46	90.30	5.97
11	21	97.[illegible]0	6.02	13	95.54	6.55	34	96.82	6.14
12	23	101.22	6.90	12	99.50	6.67	35	100.66	6.50
13	25	106.23	6.26	21	101.71	7.87	46	104.20	7.33
14	11	104.32	8.42	14	106.14	4.50	25	105.56	6.40
15	15	111.00	5.84	15	109.47	5.36	30	110.23	5.56

TABLE A-31 : MEAN MENTAL SCORES WITH THEIR STANDARD DEVIATIONS OF UPPER AND LOWER S-E GROUPS FROM RURAL AREAS FOR 1-15 MONTHS.

AGE IN MONTHS	UPPER			LOWER		
	N	MEAN	S.D.	N	MEAN	S.D.
1	6	19.00	2.28	32	18.28	4.13
2	14	24.71	6.71	37	23.19	4.62
3	15	35.00	5.69	37	34.00	5.89
4	10	38.60	3.86	41	41.71	5.54
5	16	53.75	7.04	33	51.79	7.79
6	14	64.14	8.62	30	63.47	9.36
7	18	78.11	5.55	33	77.73	5.68
8	21	82.33	5.89	29	80.97	5.65
9	17	86.00	3.57	34	86.65	5.73
10	25	91.08	5.42	21	89.38	6.58
11	20	97.05	6.[illegible]	14	96.50	5.02
12	13	101.69	5.45	22	100.05	7.22
13	18	106.72	7.62	28	102.57	6.77
14	11	106.82	5.31	14	104.57	7.19
15	18	111.28	5.18	12	108.67	5.97

TABLE A-32 : DIFFERENCES IN MEAN SCORES OF BOYS AND GIRLS (B-G) FROM RURAL AREAS OF 1-15 MONTHS AND THEIR 't' VALUES.

AGE IN MONTHS	D^{+} (B-G)	σ_D	t
1	-1.28	1.26	1.01
2	-2.13	1.47	1.45
3	1.51	1.62	0.93
4	-0.98	1.51	0.65
5	-2.17	2.18	1.00
6	1.41	2.76	0.51
7	0.99	1.65	0.60
8	0.08	1.64	0.05
9	0.23	1.44	0.16
10	0.39	1.84	0.21
11	0.46	2.20	0.21
12	1.63	2.36	0.69
13	4.57	2.09	2.18*
14	-1.32	2.62	0.51
15	1.53	2.05	0.75

+ Means are given in Table A-30.

TABLE A-33 : DIFFERENCES IN MEAN MENTAL SCORES OF UPPER AND LOWER S-E GROUPS (U-L) OF 1-15 MONTHS FROM RURAL AREAS WITH THEIR 't' VALUES.

AGE IN MONTHS	D^+ (U-L)	σD	t
1	0.72	1.75	0.41
2	1.53	1.65	0.93
3	1.00	1.79	0.56
4	-3.11	1.86	1.67
5	1.96	2.30	0.85
6	0.68	2.96	0.23
7	0.38	1.65	0.23
8	1.37	1.65	0.83
9	-0.65	1.52	0.42
10	1.70	1.77	0.96
11	0.55	2.17	0.25
12	1.65	2.32	0.71
13	4.15	2.15	1.93
14	2.25	2.59	0.87
15	2.61	2.05	1.27

+ Means are given in Table A-31.

TABLE A-34 : DIFFERENCES IN MEAN MENTAL SCORES OF BOYS IN THE UPPER AND LOWER S-E GROUPS (U-L) IN BARODA (URBAN) WITH THEIR 't' VALUES.

AGE IN MONTHS	D+ (U-L)	σD	t
1	-3.69	1.16	3.19**
2	-2.43	0.84	2.91**
3	0.89	0.79	1.12
4	3.09	1.13	2.73**
5	0.61	1.24	0.49
6	0.05	1.12	0.05
7	1.59	0.78	2.05*
8	2.01	0.64	3.13**
9	0.04	1.07	0.04
10	1.27	0.84	1.52
11	0.65	0.93	0.70
12	1.60	0.95	1.68
13	3.67	0.89	4.12**
14	3.32	0.77	4.32**
15	3.55	0.84	4.24**

+ Means are given in Tables A-21 and A-27

TABLE A-35 : DIFFERENCES IN MEAN MENTAL SCORES OF GIRLS IN THE UPPER AND LOWER S-E GROUPS (U-L) IN BARODA (URBAN) WITH THEIR 't' VALUES.

AGE IN MONTHS	D+ (U-L)	σD	t
1	-4.23	1.11	3.82**
2	-1.63	0.89	1.82
3	2.42	1.16	2.08*
4	2.34	1.42	1.65
5	2.56	1.35	1.90
6	3.00	1.36	2.20*
7	2.40	0.87	2.77**
8	2.94	0.86	3.42**
9	1.74	0.92	1.88
10	4.26	1.00	4.27**
11	2.10	1.01	2.08*
12	1.72	1.10	1.56
13	5.32	1.03	5.17**
14	5.14	1.15	4.48**
15	5.10	0.95	5.36**

+ Means are given in Tables A-21 and A-27.

TABLE A-36 : DIFFERENCES IN MEAN MENTAL SCORES OF BOYS FROM (1) UPPER S-E GROUP IN BARODA (URBAN) AND (2) ALL S-E CLASSES IN RURAL AREAS WITH THEIR 't' VALUES

AGE IN MONTHS	D^{+} (1) - (2)	σD	t
1	-0.84	1.06	-0.79
2	2.79	0.88	3.18**
3	0.65	1.14	0.57
4	6.59	1.11	5.93**
5	6.71	1.39	4.84**
6	6.06	1.73	3.49**
7	0.94	0.83	1.13
8	2.34	0.78	3.00**
9	0.92	0.91	1.01
10	1.33	0.93	1.43
11	0.94	1.14	0.83
12	1.75	1.23	1.42
13	1.70	1.12	1.52
14	7.62	1.31	5.83**
15	3.82	1.17	3.27**

+ Means are given in Tables A-21 and A-30

TABLE A-38 : DIFFERENCES IN MEAN MENTAL SCORES OF (1) UPPER S-E GROUP IN BARODA (URBAN) AND (2) UPPER S-E GROUP IN RURAL AREAS FOR 1-15 MONTHS.

AGE IN MONTHS	D+ (1)-(2)	σD	t
1	-1.90	1.40	-1.36
2	1.21	1.11	1.09
3	1.49	1.18	1.26
4	8.96	1.69	5.29**
5	5.70	1.63	3.49**
6	7.00	1.72	4.07**
7	1.54	0.91	1.69
8	1.92	0.73	2.62**
9	2.15	0.97	2.22*
10	1.93	0.96	2.01*
11	1.36	1.13	1.21
12	1.52	1.37	1.11
13	1.71	1.21	1.41
14	5.93	1.24	4.77**
15	4.23	1.11	3.81**

+ Means are given in Tables A-21 and A-31.

TABLE A-37 : DIFFERENCES IN MEAN MENTAL SCORES OF GIRLS FROM (1) UPPER S-E GROUP IN BARODA (URBAN) AND (2) ALL S-E CLASSES IN RURAL AREAS WITH THEIR 't' VALUES.

AGE IN MONTHS	D^+ (1)-(2)	σ_D	t
1	-1.62	1.04	1.56
2	1.86	1.12	1.66
3	4.12	1.06	3.89**
4	6.44	1.38	4.66**
5	7.42	1.62	4.59**
6	8.96	1.47	6.09**
7	3.09	1.02	3.01**
8	3.17	0.86	3.69**
9	2.73	0.94	2.90**
10	4.88	1.29	3.78**
11	2.53	1.45	1.75
12	3.98	1.44	2.77**
13	7.25	1.32	5.48**
14	7.07	1.33	5.31**
15	7.04	1.40	5.02**

+ Means are given in Tables A-21 and A-30.

TABLE A-39 : DIFFERENCES IN MEAN MENTAL SCORES OF (1) URBAN (BARODA) UPPER S-E GROUP AND (2) RURAL ALL S-E CLASSES WITH THEIR 't' VALUES FOR 1-15 MONTHS

AGE IN MONTHS	D^{+} (1)-(2)	σ_D	t
1	-1.29	0.74	1.75
2	2.31	0.70	3.30
3	2.20	0.78	2.83**
4	6.46	0.88	7.37**
5	7.02	1.07	6.56**
6	7.46	1.14	6.56**
7	1.79	0.65	2.77**
8	2.71	0.58	4.71**
9	1.72	0.66	2.60*
10	2.71	0.79	3.44**
11	1.59	0.90	1.78
12	2.55	0.94	2.72**
13	4.23	0.87	4.84**
14	7.19	0.92	7.80**
15	5.28	0.91	5.83**

+ Means are given in Tables A-21 and A-31.

TABLE A-40 : DIFFERENCES IN MEAN MENTAL SCORES OF (1) LOWER S-E GROUP IN BARODA (URBAN) AND (2) LOWER S-E GROUP IN RURAL AREAS WITH THEIR 't' VALUES

AGE IN MONTHS	D^{+} (1)-(2)	σD	t
1	2.84	1.06	2.68**
2	4.93	0.93	5.27**
3	1.06	1.07	0.99
4	3.28	1.32	2.49*
5	6.22	1.57	3.97**
6	6.53	1.64	3.98**
7	-0.01	1.16	0.01
8	0.85	1.23	0.69
9	0.70	1.39	0.50
10	1.21	1.43	0.85
11	0.64	1.72	0.37
12	1.48	1.57	0.94
13	1.42	1.31	1.08
14	4.14	1.78	2.33*
15	2.67	1.58	1.70

+ Means are given in Tables A-27 and A-31.

TABLE A-41 : MEAN MOTOR SCORES OF SAMPLES FROM 1.U.S.A.(BAYLEY 1961), 2.INDIA URBAN UPPER S.E.CLASS, 3. INDIA URBAN LOWER S.E.CLASS 4. INDIA RURAL ALL S.E.CLASS, 5. U.K.(Frances William 1967) 6. ISRAEL (Kohen Raz 1968)

	U.S.A.Sample (Research Form)		Indian Sample						U.K.Sample		Israeli Sample	
Age in months	N = 1403 Range : 81 - 123		Ur-Up S-E Class N = 4141 Range : 60-178		Ur-Lo S-E Class N = 1090 Range : 59-78		Ru-all S-E class N = 653 Range : 25-52		N = 300 20 at all mths.		N = 93 (Boys only) Range : 3-9	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1	6.4	2.4	9.2	1.0	12.2	3.1	11.9	2.0	8.4	2.1	9.3	2.61
2	9.7	2.5	12.4	1.8	14.7	2.9	14.7	2.3	11.1	2.2	12.3	2.41
3	12.8	2.7	15.9	2.1	17.1	2.9	18.7	2.4	14.4	2.1	15.3	2.21
4	15.2	3.1	19.8	2.2	21.3	3.1	20.4	2.6	19.0	1.7	19.1d	11.1
5	20.1	3.6	23.4	2.7	24.5	2.9	23.8	2.9	21.3	2.1	21.2	1.98
6	25.7	4.6	28.7	3.2	29.1	3.3	27.0	3.7	25.8	3.3	25.1	2.21
7	29.6	4.9	33.5	3.1	33.5	3.8	34.1	3.6	31.8	3.7	28.3	2.14
8	35.0	5.2	37.1	2.6	36.5	3.7	36.1	3.8	35.6	3.5	36.1	6.1
9	37.7	4.4	40.1	3.6	39.9	3.9	39.1	3.4	38.4	3.4		
10	41.3	3.7	42.6	2.6	41.8	2.8	42.1	3.6	41.1	3.5	49.0	2.83

d Significantly higher than U.S.A. sample at .05 level

Contd..

Table A-41 continued :

Age in months	U.S.A.Sample (Research form)		Indian Sample						U.K.Sample		Israeli Sample	
	N = 1403 Range : 81-123		Ur-Up S-E Class N = 4141 Range : 60-178		Ur-Lo S-E Class N = 1090 Range : 59-78		Ru-all S-E Class N = 653 Range : 25-52		N = 300 20 at all mths.		N = 93 (Boys only) Range : 3-9	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
11	43.7	3.3	44.7	2.2	43.7	2.7	44.7	2.8	43.2	3.4		
12	45.4	3.8	45.8	2.3	44.6	3.9	44.9	2.8	45.3	2.9	41.9	1.44
13	46.4	4.3	46.0	2.9	46.4	3.7	47.6	3.4	46.1	2.4		
14	48.4	3.5	49.5	3.3	48.7	3.4	48.3	4.5	47.8	3.4		
15	49.2	3.2	51.1	3.1	49.1	3.8	50.6	3.2	49.8	3.7	49.2	2.68
16			52.1	3.1								
17			53.4	2.5								
18	53.1*		51.2	2.1								
19			54.5	2.5							54.8	2.43
20			55.0	2.3								

* Quoted from (Kohen Raz 1968)

Contd..

Table A-41 continued :

Age in months	U.S.A.Sample (Research Form) N = 1403 Range : 81-123		Indian Sample Ur-Up S-E Class N = 4141 Range : 60-178		Ur-Lo S-E class N = 1090 Range : 59-78		Ru-all S-E class N = 653 Range : 25-52		U.K.Sample N = 300 20 at all mths.		Israeli Sample N = 93 (Boys only) Range : 3-9	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
21			55.6	1.9								
22			56.2	2.4								
23			56.9	3.0								
24	60.0*		57.5	3.1							55.7	7.01
25			59.0	3.3								
26			59.7	3.3								
27	64.4*		60.9	3.4							62.9	4.11
28			61.9	3.6								
29			62.7	3.1								
30			63.9	2.9								

* Quoted from (Kohen Raz 1968)

TABLE A-42 : MEAN MENTAL SCORES OF SAMPLES FROM 1. U.S.A.(Bayley 1961), 2. INDIA URBAN UPPER S-E CLASS, 3. INDIA-URBAN LOWER S-E CLASS, 4. INDIA - RURAL ALL S-E CLASS, 5. U.K.(Frances William 1967), 6. ISRAEL (Kohen Raz 1968)

Age in months	U.S.A.SAMPLE (Research form)		Indian Sample						U.K.Sample		Israeli Sample	
	N = 1403 Range : 81-123		Ur.Up S.E class N = 4141 Range = 60-178		Ur.Lo.S-E class N = 1090 Range = 59-78		Ru all S-E Class N = 653 Range = 25-52		N = 300 20 at all mths.		Only Male - 93 Range = 3-9	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1	13.8	4.6	17.1*	3.3	21.1	5.2	18.4	3.9	11.9	2.6	17.7	5.69
2	22.8	6.2	25.9*	3.4	28.1	4.6	23.6	5.3	[illegible]	2.9	24.6	3.24
3	33.6	7.5	36.5	4.1	35.1	4.9	34.3	5.8	34.8	5.4	36.5	3.30
4	43.1	8.2	47.6	5.2	45.0	7.3	41.1	5.4	[illegible]	4.7	48.3	3.87
5	56.1	8.5	59.5	6.1	58.0	7.4	52.4	7.5	56.8	6.9	58.5	3.21
6	69.0	8.3	71.1	6.0	70.0	6.8	53.7	9.0	71.0	4.5	72.1	3.58
7	74.9	7.0	79.7	3.9	77.7	5.6	77.9	5.6	79.4	2.8	78.2	3.67
8	80.7	6.3	84.3	2.7	51.8	5.6	81.5	5.7	[illegible]	3.5	86.7d	5.42
9	85.5	5.9	86.2	3.8	87.4	7.1	86.4	5.1	[illegible]	3.0		
10	90.7	6.1	93.0	4.3	90.6	5.5	90.3	6.0	[illegible]	2.9	93.7d	5.5

d Significantly higher than U.S.A.sampl

Contd...

Table A-42 continued

Age in months	U.S.A.Sample (Research form) N = 1403 Range = 81-123 Mean	S.D.	Indian Sample Ur.Up S-E Class N = 4141 Range = 60-178 Mean	S.D.	Ur.Lo S-E class N = 1090 Range = 59-78 Mean	S.D.	Ru all S-E class N = 653 Range = 25-52 Mean	S.D.	U.K.Sample N = 30 20 at all mths. Mean	S.D.	Israeli Sample Only Male - 93 Range = 3-9 Mean	S.D.
11	94.5	6.1	98.4	4.5	97.1	6.1	96.8	6.1	96.2	4.1		
12	99.6	6.3	103.2	4.7	101.5	6.3	100.7	6.6	102.1	3.9	105.9d	5.09
13	103.7	6.5	108.4	4,5	104.0	5.6	104.2	7.3	104.8	4.2		
14	107.4	7.0	112.8	3.9	108.7	5.8	105.6	6.4	111.8	3.0		
15	110.7	7.5	115.5	4.4	111.3	4.9	110.2	5.6	115.8	3.4	118.3d	8.09
16	115.0	7.8	119.4	4.6								
17	120.0	8.0	122.8	5.3								
18	125.0	8.3	125.9	5.7								
19	128.0	8.5	129.2	6.7							126.8	0.89
20	131.0	8.8	131.4	7.7								

Contd...

d Significantly higher than U.S.A.sample

Table A-42 continued

Age in months	U.S.A.Sample (Research form)		Indian Sample						U.K.Sample		Israeli Sample	
	N = 1403 Range = 81-123		Ur.Up S-E class N = 4141 Range = 60-178		Ur.Lo.S-E Class N = 1090 Range = 59-78		Ru all S-E class N = 653 Range = 25-52		N = 300 20 at all mths.		Only Male - 93 Range = 3-9	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
21	134.0	9.0	135.6	7.6								
22	137.0	9.2	138.2	8.6								
23	140.0	9.4	141.3	8.5								
24	143.0	9.5	144.4	8.3								
25	148.0	9.5	149.0	7.7							151.1	5.3
26	150.0	9.5	151.4	7.4								
27	152.0	9.5	153.7	6.3								
28	154.0	9.5	155.3	6.2							155.3	7.3
29	155.0	9.5	156.3	4.8								
30	156.0	9.5	157.2	4.9								

TABLE A-43 : D, σD AND C.R. FOR MOTOR AND MENTAL SCORE MEANS FOR U.S.A. BABIES AND BARODA UPPER CLASS BABIES.

AGE IN MONTHS	MOTOR			MENTAL		
	D+	σD	C.R.	D	σD	C.R.
1	2.8	0.29	9.66**	3.3	0.65	5.08**
2	2.7	0.32	8.44**	3.1	0.73	4.25**
3	3.1	0.35	8.86**	2.9	0.88	3.30**
4	4.6	0.38	12.11**	4.5	0.98	4.59**
5	3.3	0.45	7.33**	3.4	1.04	3.27**
6	3.0	0.54	5.56**	2.1	0.97	2.16 *
7	3.9	0.55	7.09**	4.8	0.76	6.32**
8	2.1	0.51	4.12**	3.6	0.60	6.00**
9	2.4	0.51	4.71**	2.7	0.65	4.15**
10	1.3	0.42	3.10**	2.3	0.69	3.33**
11	1.0	0.40	2.50*	3.9	0.75	5.20**
12	0.4	0.42	0.95	3.6	0.72	5.00**
13	1.6	0.51	3.14**	4.7	0.76	6.18**
14	1.1	0.45	2.44*	5.4	0.79	6.84**
15	1.9	0.41	4.63**	4.8	0.87	5.52**

+ Means are given in Table A-41 and A-42

TABLE A-44 : PRODUCT-MOMENT CORRELATIONS BETWEEN MOTOR AND MENTAL SCORES FOR EACH MONTH

AGE IN MONTHS	SAMPLE SIZE	CORRELATION COEFFICIENT r
1	60	0.24
2	104	0.35**
3	119	0.33**
4	124	0.62**
5	149	0.61**
6	166	0.64**
7	164	0.46**
8	173	0.38**
9	169	0.46**
10	169	0.48**
11	172	0.38**
12	178	0.40**
13	164	0.31**
14	166	0.43**
15	178	0.44**

Contd..

Table A-[illegible]4 continued :

AGE IN MONTHS	SAMPLE SIZE	CORRELATION COEFFICIENT r
16	140	0.40**
17	138	0.38**
18	136	0.43**
19	131	0.55**
20	131	0.42**
21	132	0.52**
22	127	0.41**
23	125	0.50**
24	126	0.51**
25	119	0.52**
26	120	0.43**
27	116	0.46**
28	112	0.53**
29	119	0.45**
30	114	0.50**

TABLE A-45 : PRODUCT-MOMENT 'r's BETWEEN TWO CONSECUTIVE TESTINGS ON MOTOR AND MENTAL SCALES FROM 1 to 30 MONTHS

BETWEEN MONTHS	SAMPLE SIZE	'r (MOTOR)	r (MENTAL)
1 & 2	37	0.12	0.28
2 & 3	65	0.33**	0.15
3 & 4	60	0.33**	0.48**
4 & 5	79	0.61**	0.49**
5 & 6	96	0.60**	0.69**
6 & 7	110	0.70**	0.45**
7 & 8	117	0.48**	0.36**
8 & 9	122	0.66**	0.38**
9 & 10	117	0.53**	0.51**
10 & 11	118	0.62**	0.53**
11 & 12	110	0.70**	0.59**
12 & 13	114	0.76**	0.70**
13 & 14	112	0.74**	0.69**
14 & 15	118	0.77**	0.76**

Contd...

Table A-45 continued :

BETWEEN MONTHS	SAMPLE SIZE	r' (MOTOR)	r (MENTAL)
15 & 16	112	0.79**	0.77**
16 & 17	108	0.83**	0.76**
17 & 18	103	0.79**	0.78**
18 & 19	99	0.74**	0.81**
19 & 20	93	0.81**	0.88**
20 & 21	97	0.58**	0.84**
21 & 22	100	0.62**	0.84**
22 & 23	89	0.79**	0.86**
23 & 24	94	0.78**	0.86**
24 & 25	93	0.71**	0.80**
25 & 26	88	0.82**	0.81**
26 & 27	93	0.76**	0.83**
27 & 28	88	0.67**	0.79**
28 & 29	88	0.67**	0.81**
29 & 30	90	0.70**	0.82**

TABLE A-46 : SPLIT-HALF RELIABILITY INDICES OF MOTOR AND MENTAL SCALES FOR 1-30 MONTHS

AGE IN MONTHS	SAMPLE SIZE	MOTOR SCALE RELIABILITY	MENTAL SCALE RELIABILITY
1.	60	0.49	0.85
2.	104	0.62	0.78
3.	119	0.68	0.85
4	124	0.77	0.91
5.	149	0.67	0.91
6	166	0.79	0.92
7	164	0.83	0.82
8	173	0.78	0.70
9	169	0.84	0.80
10	169	0.87	0.91
11	172	0.86	0.82
12	178	0.86	0.87
13	164	0.92	0.83
14	166	0.94	0.79
15	179	0.94	0.81

Contd...

Table A-46 continued :

AGE IN MONTHS	SAMPLE SIZE	MOTOR SCALE RELIABILITY	MENTAL SCALE RELIABILITY
16	140	0.95	0.83
17	138	0.93	0.87
18	136	0.88	0.91
19	131	0.91	0.94
20	131	0.90	0.94
21	132	0.85	0.93
22	127	0.87	0.95
23	125	0.92	0.93
24	126	0.90	0.94
25	119	0.92	0.93
26	120	0.88	0.91
27	116	0.91	0.92
28	112	0.93	0.93
29	119	0.89	0.88
30	114	0.88	0.90

TABLE A-47 : MEAN MOTOR SCORES IN THE TWO SAMPLES OF PRE AND POST JULY 1, 1966 AND 't' VALUES FOR THEIR DIFFERENCES.

AGE IN MONTHS	MEAN Pre 1966	 Post 1966	t
1	9.07	9.38	0.89
2	12.42	13.27	1.73
3	16.11	15.64	0,87
4	19.58	19.67	0.19
5	23.26	23.21	0.10
6	28.45	29.38	1.69
7	33.49	33.33	0.29
8	36.97	36.81	0.34
9	40.10	40.09	0.02
10	42.54	42.56	0.05
11	44.41	45.01	1.62
12	45.78	45.49	0.81
13	47.56	47.89	0.69
14	49.50	49.30	0.31
15	51.22	50.00	1.59

Contd...

Table A-47 continued :

AGE IN MONTHS	MEAN Pre. 1966	Post 1966	t
16	52.19	51.87	0.59
17	53.57	52.90	1.49
18	54.04	54.16	0.32
19	54.68	54.02	1.50
20	55.20	54.54	1.70
21	55.55	55.38	0.53
22	56.35	55.65	1.46
23	57.43	56.18	2.50*
24	51.86	56.97	1.68
25	59.67	58.25	1.89
26	60.37	58.75	2.70**
27	61.32	60.46	1.39
28	61.89	61.69	0.30
29	62.49	62.72	0.41
30	63.93	63.94	0.02

TABLE A-48 : MEAN MENTAL SCORES IN THE TWO SAMPLES OF PRE AND POST JULY 1, 1966 and 't' VALUES FOR THEIR DIFFERENCES.

AGE IN MONTHS	MEAN Pre 1966	MEAN Post 1966	t
1	17.32	17.15	0.16
2	25.94	24.40	1.57
3	36.09	37.60	1.68
4	47.22	47.89	0.59
5	59.35	58.87	0.42
6	71.51	69.78	1.71
7	79.90	78.63	2.12*
8	84.56	83.26	2.77**
9	88.17	87.46	1.22
10	93.47	92.05	2.09*
11	98.30	98.01	0.31
12	103.64	102.18	2.19*
13	107.75	108.38	0.66
14	113.03	112.13	1.41
15	116.29	114.28	3.09**

Contd...

Table A-48 continued :

AGE IN MONTHS	MEAN Pre 1966	MEAN Post 1966	t
16	119.57	118.86	0.87
17	122.49	122.48	0.01
18	125.39	125.95	0.58
19	128.72	129.36	0.55
20	130.15	131.97	1.56
21	132.36	134.60	2.46*
22	137.68	138.65	0.63
23	140.27	142.29	1.33
24	143.46	145.41	1.34
25	148.82	149.21	0.27
26	149.62	152.49	1.91
27	152.42	154.79	2.04*
28	153.19	156.63	2.92**
29	155.00	158.16	3.76**
30	156.45	157.76	1.41

TABLE A-49 : MEAN MOTOR SCORES BY EACH TESTER AND ± 1 SD LIMITS OF SAMPLE MEANS FOR 1-30 MONTHS

AGE IN MONTHS	TESTER'S MEANS A	B	C	D	E	F	G	H	I	J	K	LIMITS OF SAMPLE MEANS Mean + 1 SD	Mean -1 SD
1	9.4	9.0	10.6	8.3	9.1						9.3	10.18	8.18
2	12.2	11.5	13.3	12.8	13.0		13.3			13.0		14.25	10.59
3	16.3	15.0	16.8		16.0					14.6		17.95	13.85
4	20.9	18.4	21.3		18.9		18.8	19.0		19.6	19.5	21.99	17.53
5	24.0	22.8	24.1		22.5		22.3	22.5		24.8		26.10	20.62
6	29.3	27.8	29.5		27.6		29.3	28.5		29.9	29.8	31.89	25.59
7	33.4	32.2	34.9	31.3	33.8		30.7	33.6	36.7	32.7		36.53	30.41
8	36.8	37.1	37.9		36.0		37.1	38.9	37.0	37.0	38.3	39.67	34.45
9	40.4	38.4	40.3		40.0	41.3	40.1	41.2	37.5	41.5		43.74	36.52
10	42.3	42.7	42.3		41.6	43.4	42.1	43.0				45.11	40.01
11	44.2	44.0	44.9		44.8		44.9	45.1	46.8	44.0		46.90	42.48
12	45.9	46.0	45.3		45.8	43.5	44.8	45.8	47.3	45.2	46.0	48.12	43.44
13	48.2	47.4	47.9		48.3	47.7	47.3	47.9	48.1	48.7		50.88	45.06
14	49.4	49.7	50.5		49.3	49.0	48.5	49.4	50.4	48.0		52.83	46.19
15	51.6	52.5	51.4		50.4		50.3	50.3	51.4	50.8		54.20	47.92

Contd...

Table A-49 continued :

AGE IN MONTHS	TESTER'S MEANS A	B	C	D	E	F	G	H	I	J	K	LIMITS OF SAMPLE MEANS Mean + 1 SD	Mean -1 SD
16	52.9	51.9	52.2		51.9		50.4	52.0				55.23	49.01
17	54.4	53.5	53.9		53.0		50.0	53.3	53.0			55.93	50.89
18	54.3	54.0	55.4		54.3		54.5	53.6	54.1			56.28	52.18
19	55.4	54.0	56.6		54.6		52.9	54.4	53.6			56.95	51.97
20	55.2	55.6	55.8		54.9		55.0	54.1	54.2			57.29	52.73
21	56.2	55.6	56.2		55.2		55.3	55.8	54.8			57.43	53.71
22	57.1	56.5			56.3		55.6	55.4	54.4			58.62	53.86
23	57.3	57.9			57.0		55.7	55.6	53.7			59.85	53.93
24	58.4	57.8			57.1		55.3	59.0	55.0			60.57	54.41
25	59.2	60.0			58.4		58.4	58.3				62.31	55.65
26	61.1	60.2			59.1		58.3	59.6	60.8			62.95	56.41
27	61.3	61.3			60.8		59.8	62.3	60.7			64.36	57.52
28	63.3	61.0			62.2		61.0	63.0	61.1			65.45	58.35
29	62.8	62.3			62.8		64.7	62.8	62.0			65.76	59.60
30	64.0	63.8			64.1	60.0		64.7	63.5			66.82	60.94

TABLE A-50 : MEAN MENTAL SCORES BY EACH TESTER AND ± 1 SD LIMITS OF SAMPLE MEANS FOR 1 - 30 MONTHS

AGE IN MONTHS	TESTERS MEANS A	B	C	D	E	F	G	H	I	J	K	LIMITS OF SAMPLE MEANS Mean + SD	Mean - SD
1	16.3	16.7	19.3	16.0	18.6						14.3	20.44	13.76
2	25.2	23.1	22.8	25.7	27.6		28.7			24.5		29.29	22.55
3	36.5	33.0	35.9		37.2					40.4		40.60	32.38
4	48.1	43.2	49.5		48.9		44.2	51.3		45.6	47.5	52.79	42.33
5	59.5	53.4	60.4		60.4		54.0	62.5		57.8		65.57	53.33
6	72.8	68.5	72.7		72.1		70.6	71.5		66.5	71.1	77.09	65.19
7	79.7	79.2	80.9	79.3	80.1		78.9	79.0	83.0	74.9		83.06	76.24
8	84.6	84.6	84.9		83.8		83.9	83.5	83.0	81.4	83.0	86.93	81.57
9	89.1	88.1	88.1		87.7	90.0	87.3	8[illegible].3	87.2	91.2		91.97	84.33
10	93.1	95.3	93.7		90.7	95.4	91.7	92.1				97.35	88.67
11	98.8	98.3	99.5		97.3		96.7	97.6	101.2	95.2		102.87	93.95
12	102.9	104.5	104.6		102.2	97.0	101.6	102.6	106.5	101.2	102.3	107.93	98.49
13	108.9	108.8	108.3		106.6	107.0	107.5	109.1	111.7	110.5		112.92	103.94
14	112.2	113.1	115.4		112.4	106.0	112.0	112.4	113.9	112.6		116.65	108.85
15	116.8	117.5	117.2		113.7		115.3	115.3	115.6	113.6		119.92	111.10

Mean values crossing the limits are underlined.

Contd..

Table A-50 continued :

AGE IN MONTHS	TESTER'S MEANS A	B	C	D	E	F	G	H	I	J	K	LIMITS OF SAMPLE MEANS MEAN + SD	MEAN - SD
16	120.2	119.5	121.4		117.8		119.2	119.8				123.97	114.81
17	123.3	122.7	125.1		121.9		119.0	123.2	123.1			128.06	117.50
18	125.1	125.3	129.0		124.8		125.7	125.3	132.9			131.57	120.23
19	129.7	127.3	139.0		128.7		126.0	130.6	132.3			135.85	122.55
20	131.3	130.0	135.2		131.5		129.8	132.5	133.8			139.04	123.70
21	134.4	131.0	134.7		133.5		132.7	135.6	141.5			141.20	125.96
22	138.6	136.9			139.8		136.0	134.5	141.9			146.84	129.64
23	140.6	140.5			142.7		139.9	142.1	140.9			149.72	132.80
24	142.5	143.9			143.9		145.7	148.4	141.7			152.73	136.13
25	149.2	147.6			148.7		150.8	149.9				156.64	141.32
26	151.4	149.2			151.5		153.0	156.6	154.3			158.81	144.07
27	151.5	152.4			153.4		159.5	157.3	157.8			160.02	147.42
28	157.5	151.9			155.8		155.2	157.2	157.8			161.47	149.01
29	156.1	154.3			157.4		161.7	160.2	158.7			161.57	152.07
30	157.0	154.4			157.6	158.7		159.6	156.3			162.05	152.27

TABLE A-51 : **FREQUENCY** OF MOTOR SCALE ITEMS PLACED IN EACH MONTH ([illegible]) ACCORDING TO DIFFERENT PERCENTAGE OF THE SAMPLE PASSING THE ITEMS.

AGE IN MONTHS	FREQUENCIES OF ITEM. 3%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	97%
0.0-1.1	16	16	13	10	9	9	9	9	[illegible]	9	8	6	5
1.2-2.1	3	2	5	5	6	5	4	2	[illegible]	1	0	2	3
2.2-3.1	3	4	2	4	3	3	4	5	[illegible]	3	3	3	2
3.2-4.1	6	5	6	3	2	3	2	3	[illegible]	5	6	4	5
4.2-5.1	7	5	4	7	6	6	6	2	[illegible]	2	2	3	3
5.2-6.1	4	5	5	6	6	4	4	7	[illegible]	5	5	2	1
6.2-7.1	3	5	5	2	4	5	6	6	[illegible]	6	3	6	6
7.2-8.1	2	2	2	5	5	3	1	2	3	4	6	3	3
8.2-9.1	2	1	3	2	1	4	5	5	3	1	3	6	4
9.2-10.1	2	3	1	1	2	2	3	3	2	5	3	1	4
10.2-11.1	1	1	2	2	1	1	1	0	3	3	2	4	4
11.2-12.1	3	3	1	1	3	1	0	1	0	0	3	2	1
12.2-13.1	3	3	4	2	2	3	3	3	1	1	0	2	3
13.2-14.1	0	0	2	3	2	2	2	1	3	2	1	0	0
14.2-15.1	1	1	0	1	2	2	2	1	2	1	2	0	0
15.2-16.1	1	0	0	1	0	1	1	2	2	2	1	1	1

Tabld A-51 continued

AGE IN MONTHS	3%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	97%
	FREQUENCIES OF ITEMS												
16.2-17.1	0	1	1	1	1	0	1	2	1	2	2	4	1
17.2-18.1	0	0	0	0	1	1	0	0	1	1	2	1	3
18.2-19.1	1	0	0	0	0	0	1	0	0	1	1	2	0
19.2-20.1	4	1	1	0	0	1	0	0	0	0	0	0	3
20.2-21.1	3	4	0	0	0	0	1	1	0	0	1	1	0
21.2-22.1	1	2	6	1	0	0	0	0	1	0	0	1	0
22.2-23.1	0	1	0	2	2	0	0	1	0	0	0	0	0
23.2-24.1	0	1	1	3	1	2	1	0	0	1	0	0	0
24.2-25.1	1	0	2	1	4	1	1	2	0	0	0	0	2
25.2-26.1	0	0	0	1	0	4	1	0	2	0	0	0	0
26.2-27.1	0	1	0	2	1	0	4	2	1	1	1	0	0
27.2-28.1	0	0	1	0	1	1	0	2	3	1	0	0	0
28.2-29.1	0	0	0	1	0	1	1	1	1	3	1	1	0
29.2-30.1	0	0	0	0	2	1	1	0	1	3	1	0	1
Items not placed.	0	0	0	0	0	1	2	4	4	4	10	12	12
Total Items:67	67	67	67	67	67	67	67	67	67	67	67	67	67

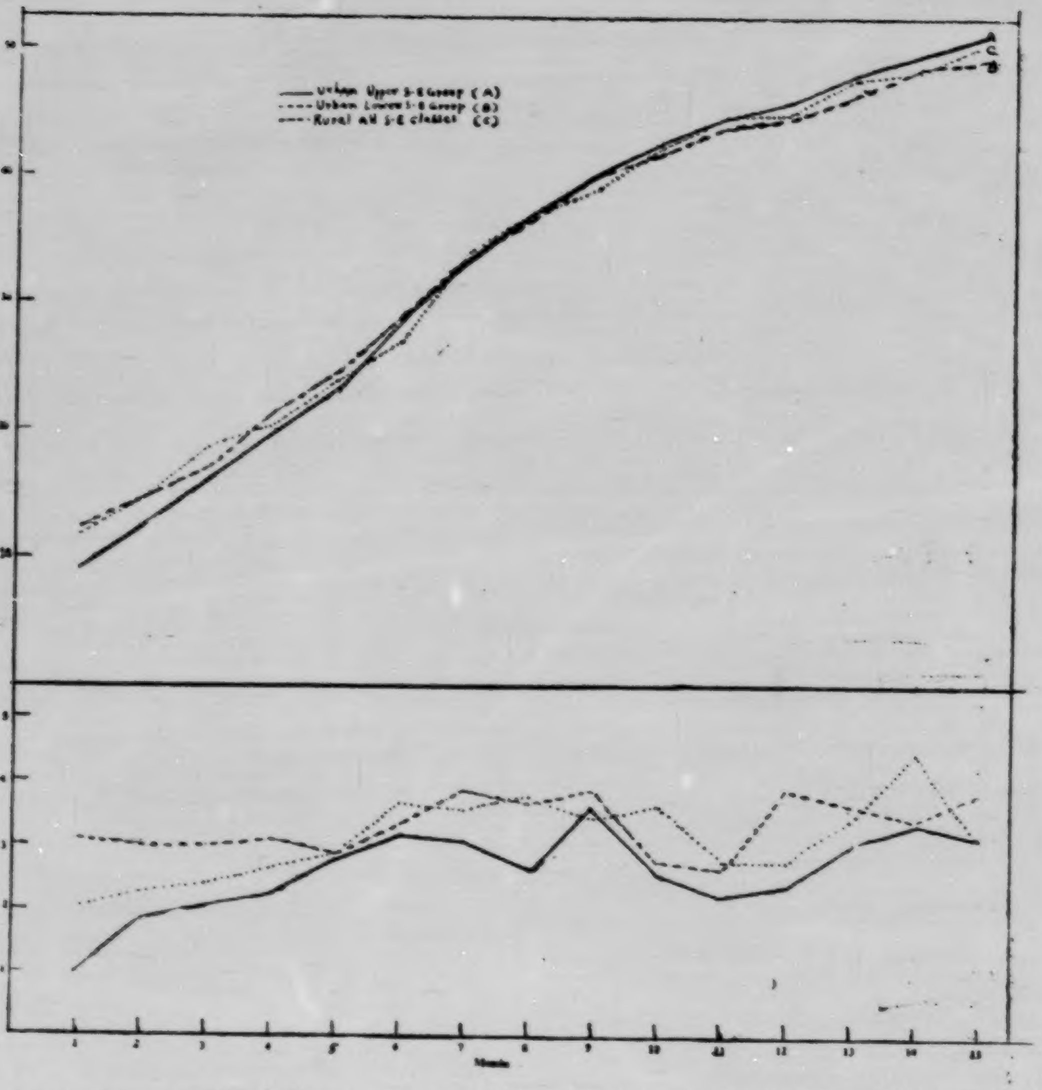
TABLE A-52 : FREQUENCY OF MENTAL SCALE ITEMS PLACED IN EACH MONTH (1-30) ACCORDING TO DIFFERENT PERCENTAGES OF THE SAMPLE PASSING THE ITEMS.

AGE IN MONTHS	FREQUENCIES OF ITEMS												
	3%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	97%
0.0-1.1	31	29	25	22	20	18	15	14	14	12	11	9	8
1.2-2.1	12	11	14	10	11	10	11	10	10	9	5	4	4
2.2-3.1	12	11	7	13	12	12	13	12	8	8	11	11	10
3.2-4.1	15	15	16	11	10	10	9	11	13	13	11	11	12
4.2-5.1	10	12	13	15	14	14	14	11	9	10	10	9	9
5.2-6.1	7	8	8	8	11	12	13	14	16	13	9	11	8
6.2-7.1	2	1	4	6	6	7	7	7	8	11	16	17	17
7.2-8.1	3	5	4	4	3	3	3	6	5	5	5	2	5
8.2-9.1	10	9	5	3	3	3	4	1	3	4	5	8	5
9.2-10.1	4	5	10	9	9	6	3	4	3	3	2	3	6
10.2-11.1	8	3	1	5	5	8	9	8	5	4	3	1	1
11.2-12.1	4	8	8	3	4	3	5	4	7	6	4	6	4
12.2-13.1	2	1	3	7	7	5	3	5	6	5	8	4	5
13.2-14.1	5	7	1	2	3	4	6	5	3	5	5	6	6
14.2-15.1	2	1	6	2	1	3	2	3	3	4	2	1	3
15.2-16.1	9	4	2	4	5	3	1	3	4	3	5	8	5

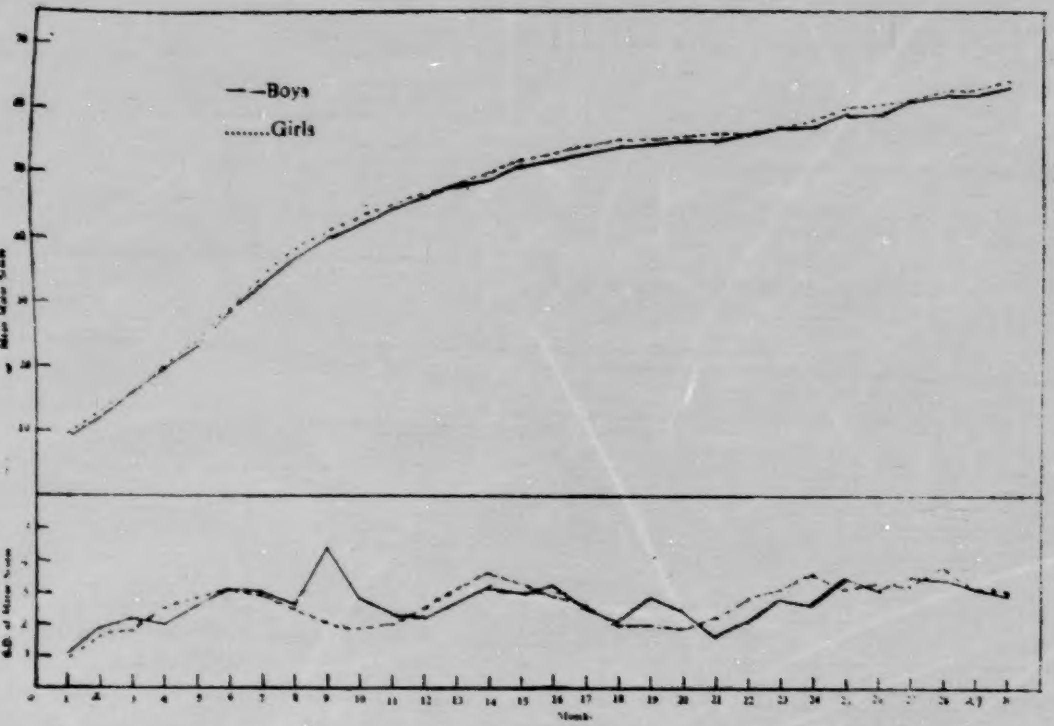
Table A-52 continued

AGE IN MONTHS	FREQUENCIES OF ITEMS 3%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	97%
16.2-17.1	7	9	4	5	2	3	5	3	1	3	3	1	4
17.2-18.1	4	4	8	3	3	2	2	3	3	1	3	4	2
18.2-19.1	8	7	1	4	5	3	2	2	3	3	1	1	3
19.2-20.1	6	3	8	2	2	4	1	2	2	2	1	1	1
20.2-21.1	1	3	3	3	2	3	5	1	2	2	1	1	0
21.2-22.1	0	6	6	11	5	3	3	6	2	3	4	3	2
22.2-23.1	0	0	3	3	6	3	4	2	6	2	2	1	3
23.2-24.1	0	0	1	3	5	7	4	3	3	4	3	4	1
24.2-25.1	0	0	1	3	4	6	8	8	3	5	3	3	4
25.2-26.1	0	0	0	1	3	2	3	5	5	1	2	2	2.
26.2-27.1	1	0	0	0	1	4	3	1	6	3	4	4	4
27.2-28.1	0	0	0	0.	0	0	2	2	1	7	2	2	1
28.2-29.1	0	0	0	0	0	1	1	3	1	3	3	2	2
29.2-30.1	0	0	0	0	0	0	0	1	2	0	2	1	1
Items not placed	0	1	1	1	1	1	2	3	6	9	17	22	25
Total Items:	163	163	163	163	163	163	163	163	163	163	163	163	163

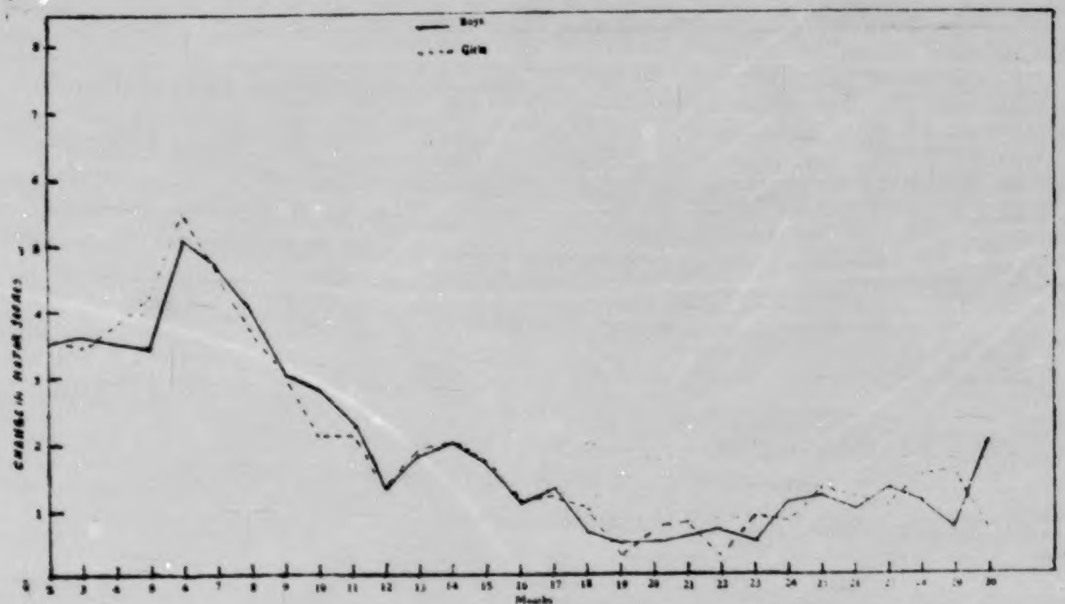
APPENDIX-B



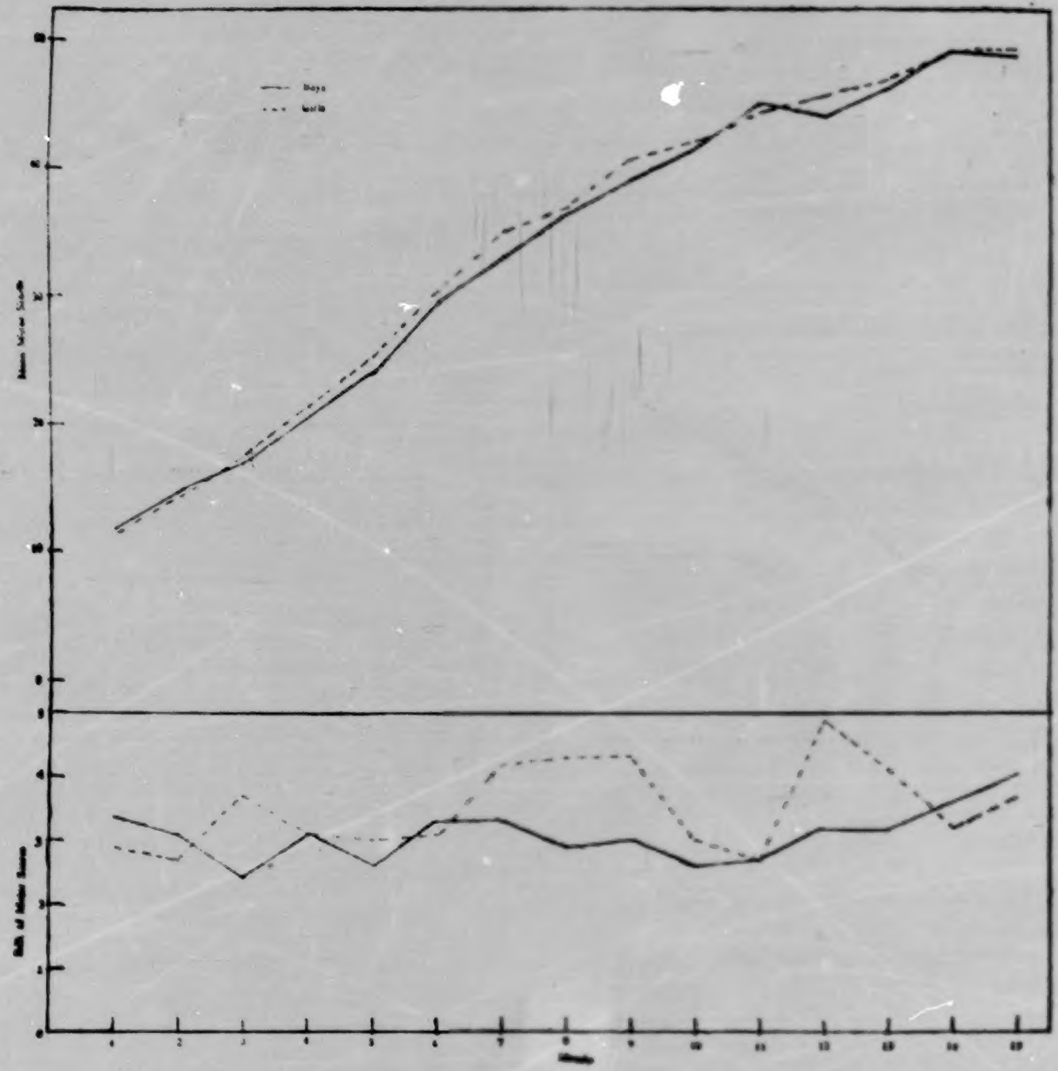
Graph B-1 : Graphs of Means and Standard Deviations of Motor Scores of the Total Groups from (a) Urban Upper S-E Group (b) Urban Lower S-E Group and (c) Rural all S-E classes



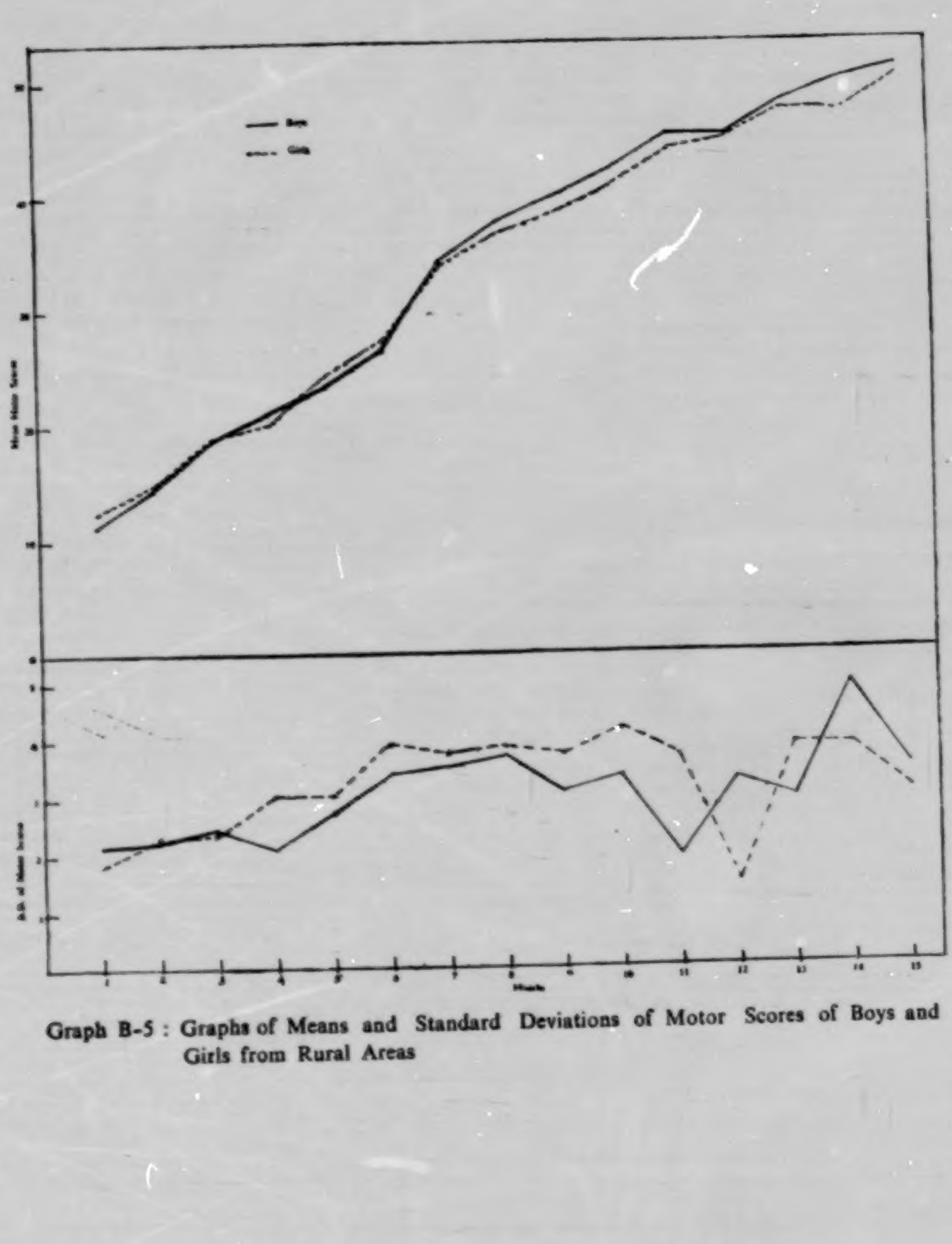
Graph B–2 : Graphs of Means and Standard Deviations of Motor Scores of Boys and Girls from Upper S–E Group in Baroda (Urban)



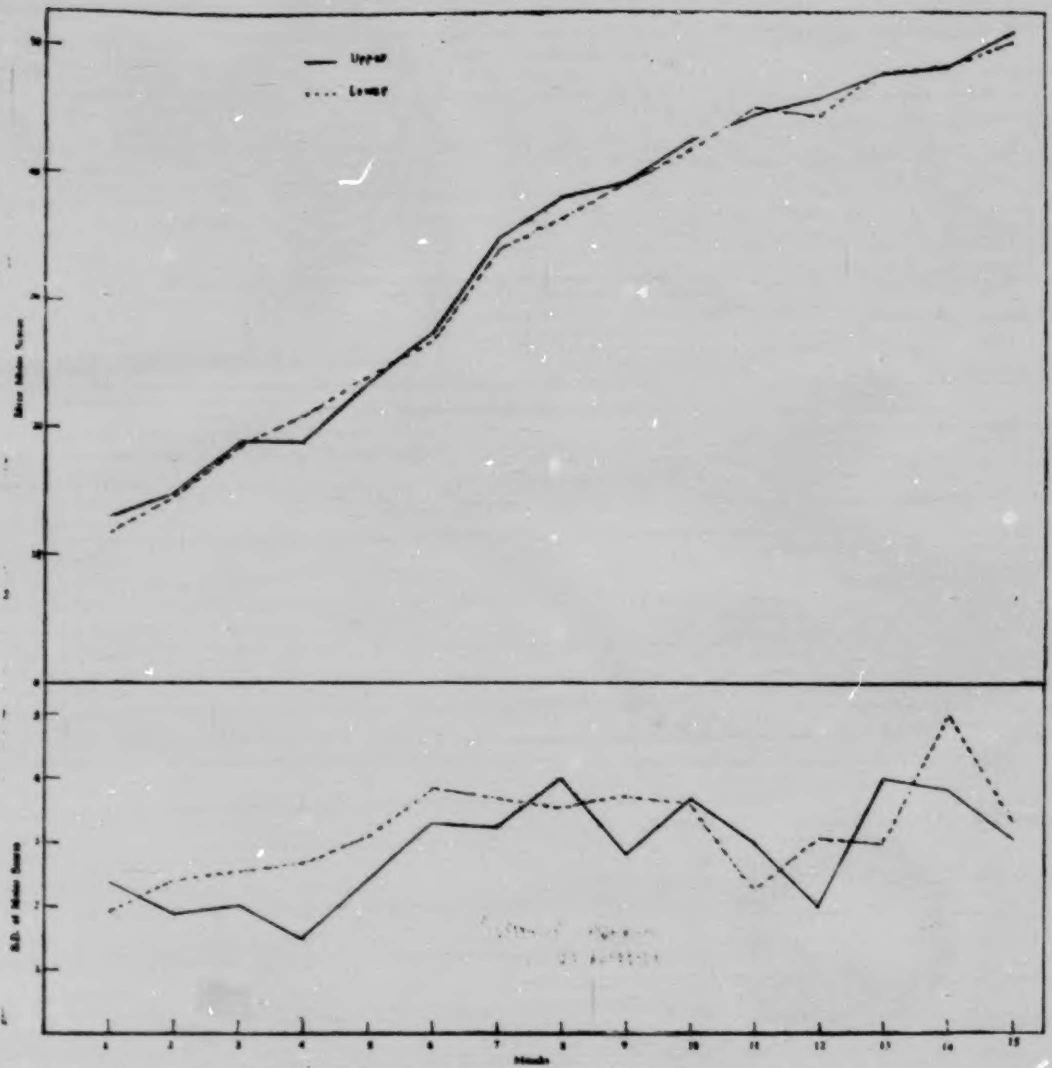
Graph B–3 : Motor Growth Speed Graphs of Boys and Girls from Upper S–E Group in Baroda (Urban)



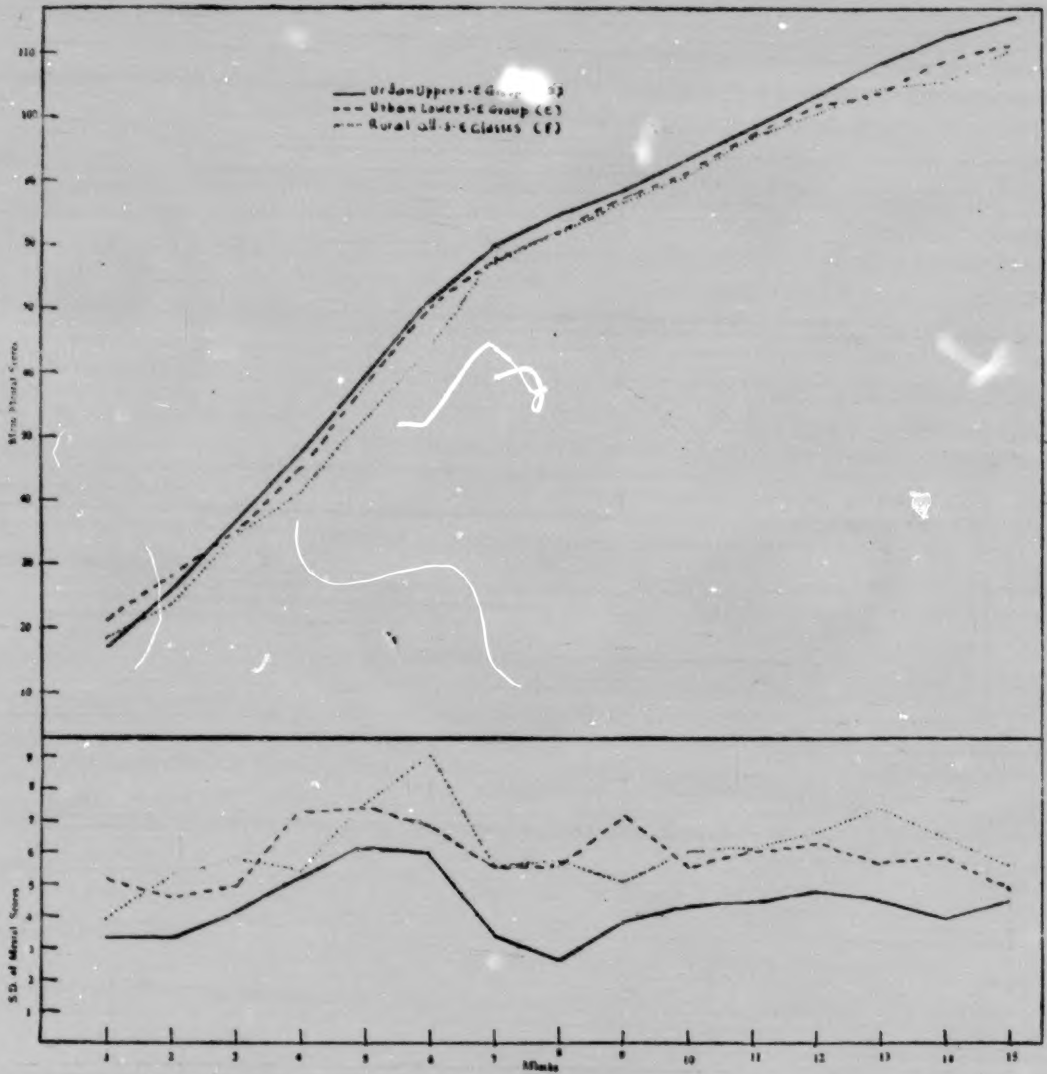
Graph B-4 : Graphs of Means and Standard Deviations of Motor Scores of Boys and Girls from Lower S-E Group in Baroda (Urban)



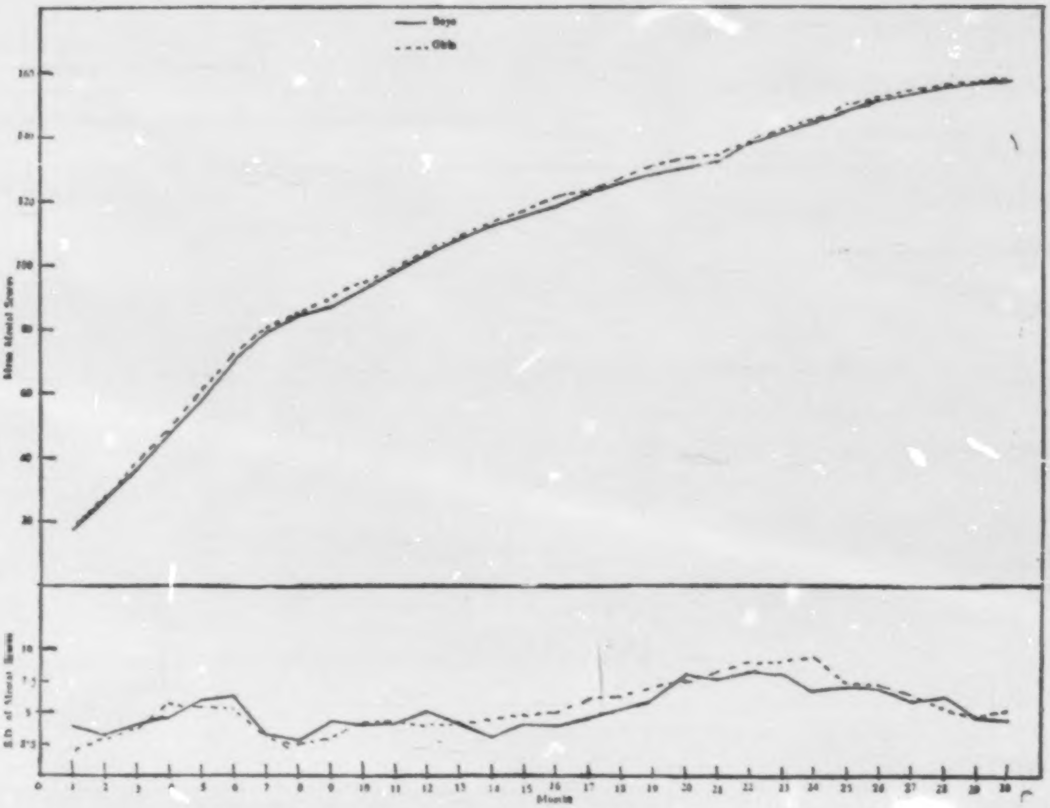
Graph B-5 : Graphs of Means and Standard Deviations of Motor Scores of Boys and Girls from Rural Areas



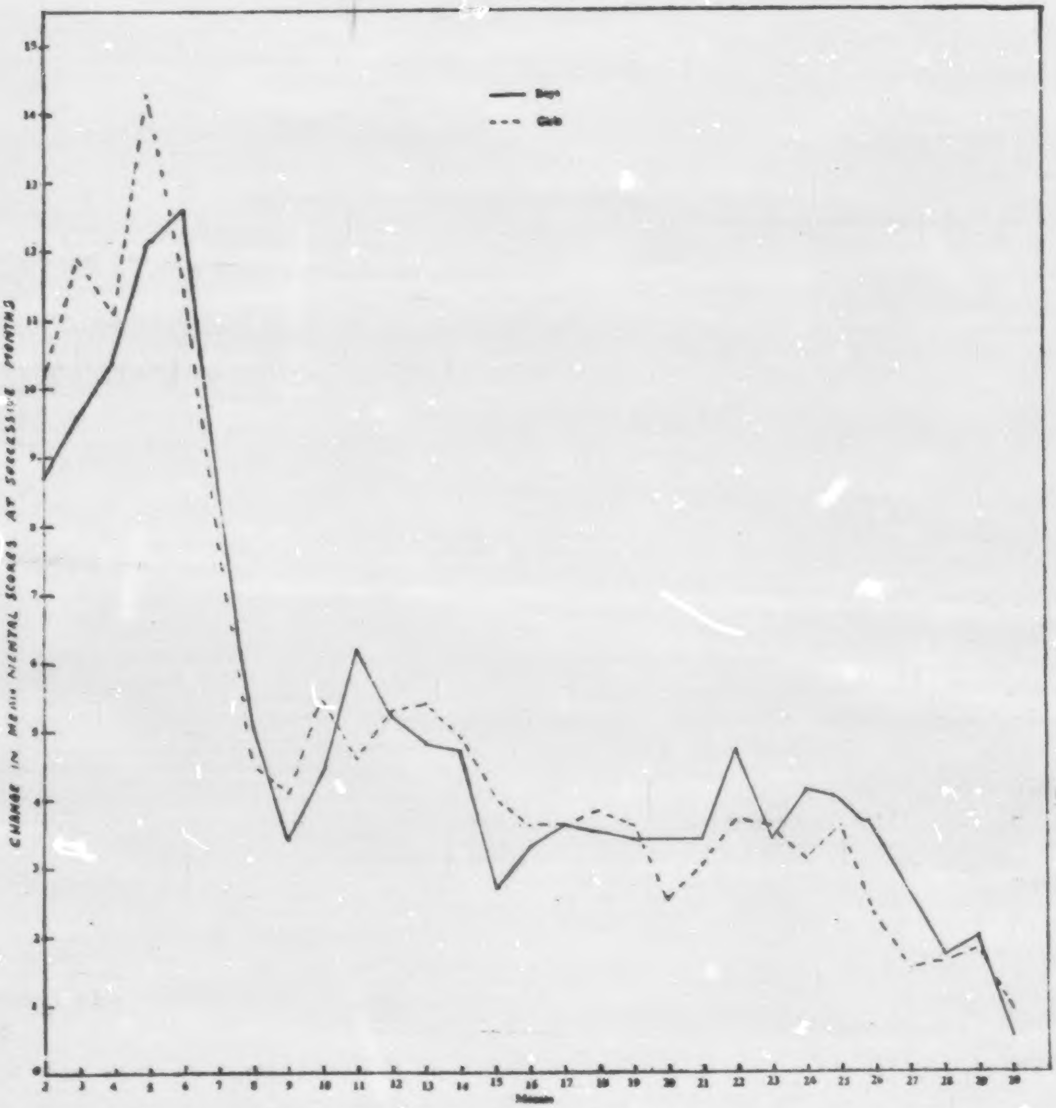
Graph B-6 : Graphs of Means and Standard Deviations of Motor Scores of Upper and Lower S-E Groups from Rural Areas



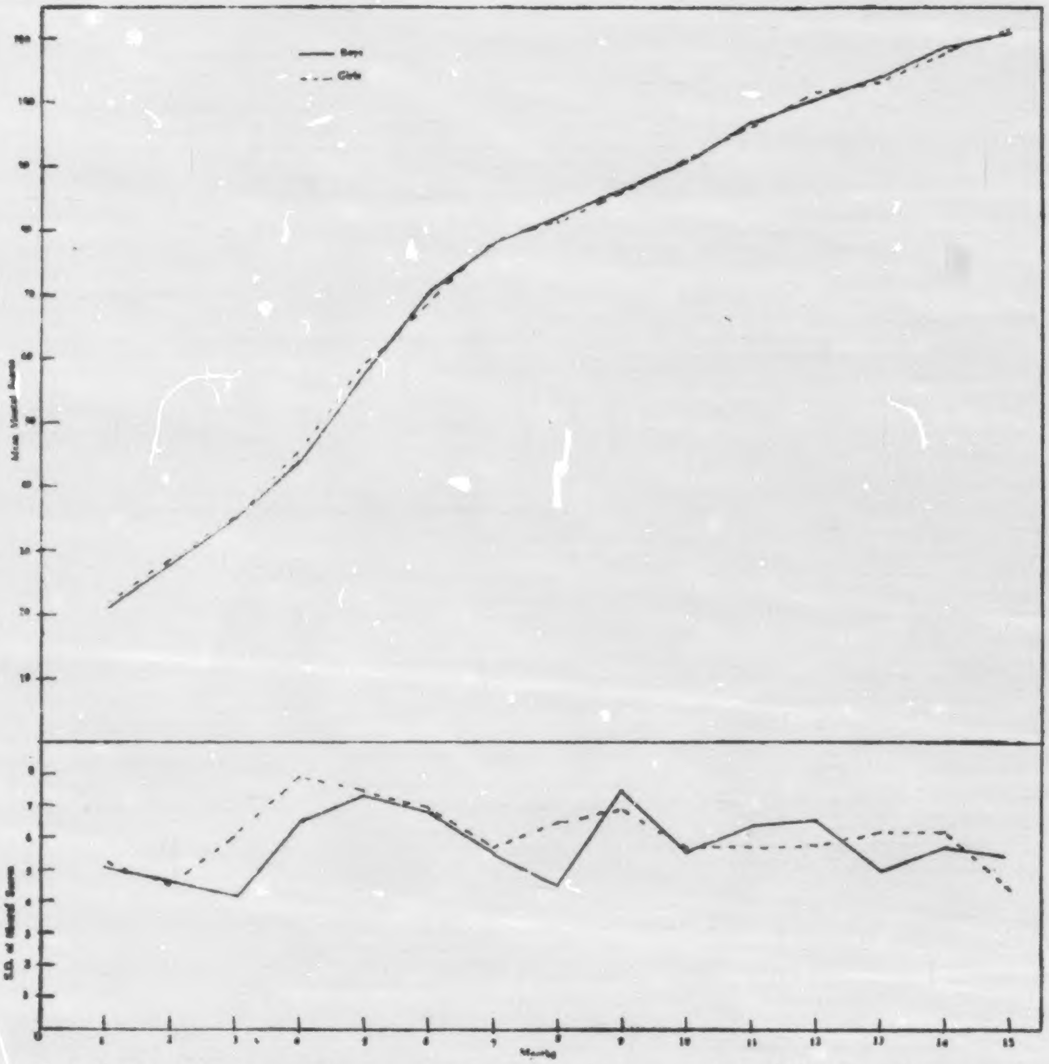
Graph B-7 : Graphs of Means and Standard Deviations of Mental Scores of the Total Group from (a) Urban Upper S-E Group, (b) Urben Lower S-E Group and (c) Rural All S-E Classes Combined Group



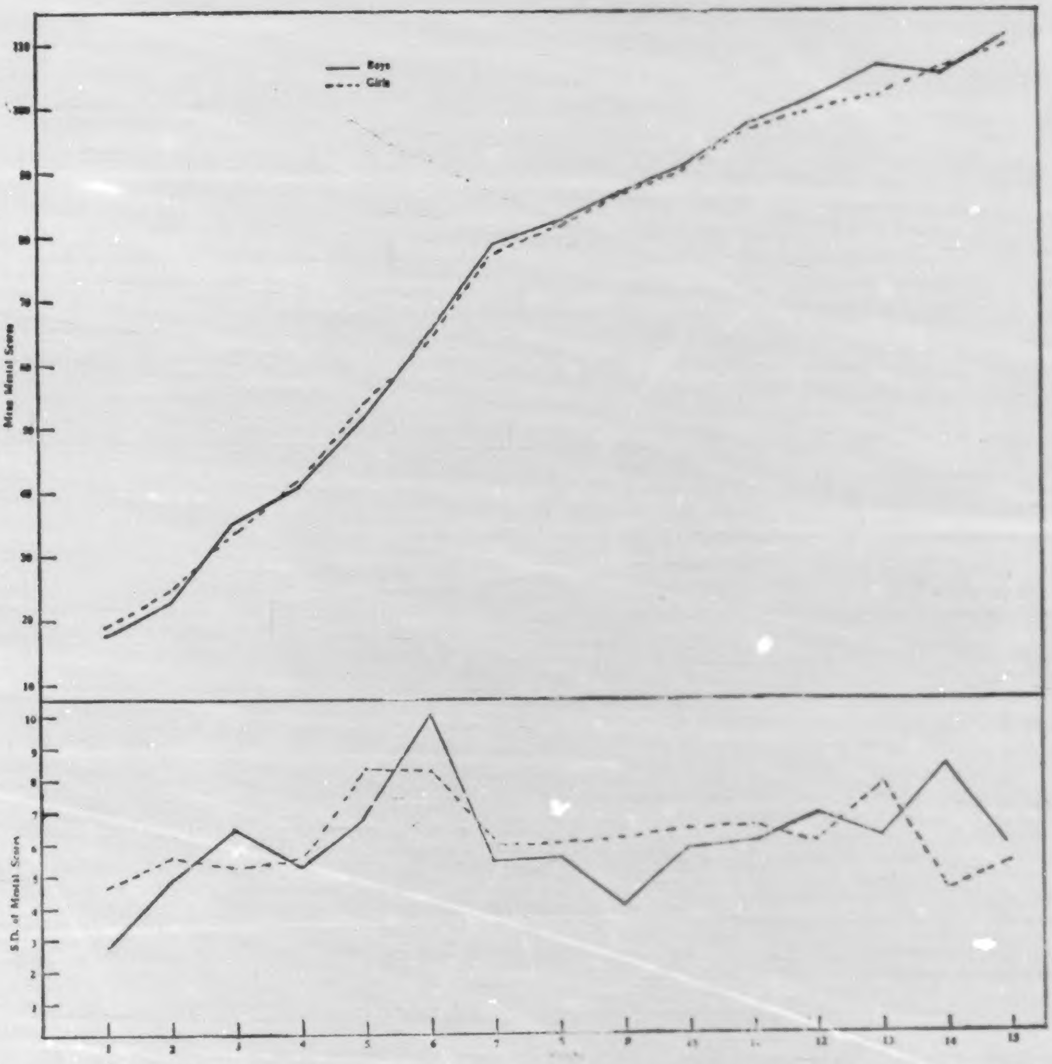
Graph B-8 : Graphs of Means and Standard Deviations of Mental Scores of Boys and Girls from Upper S-E Group in Baroda (Urben)



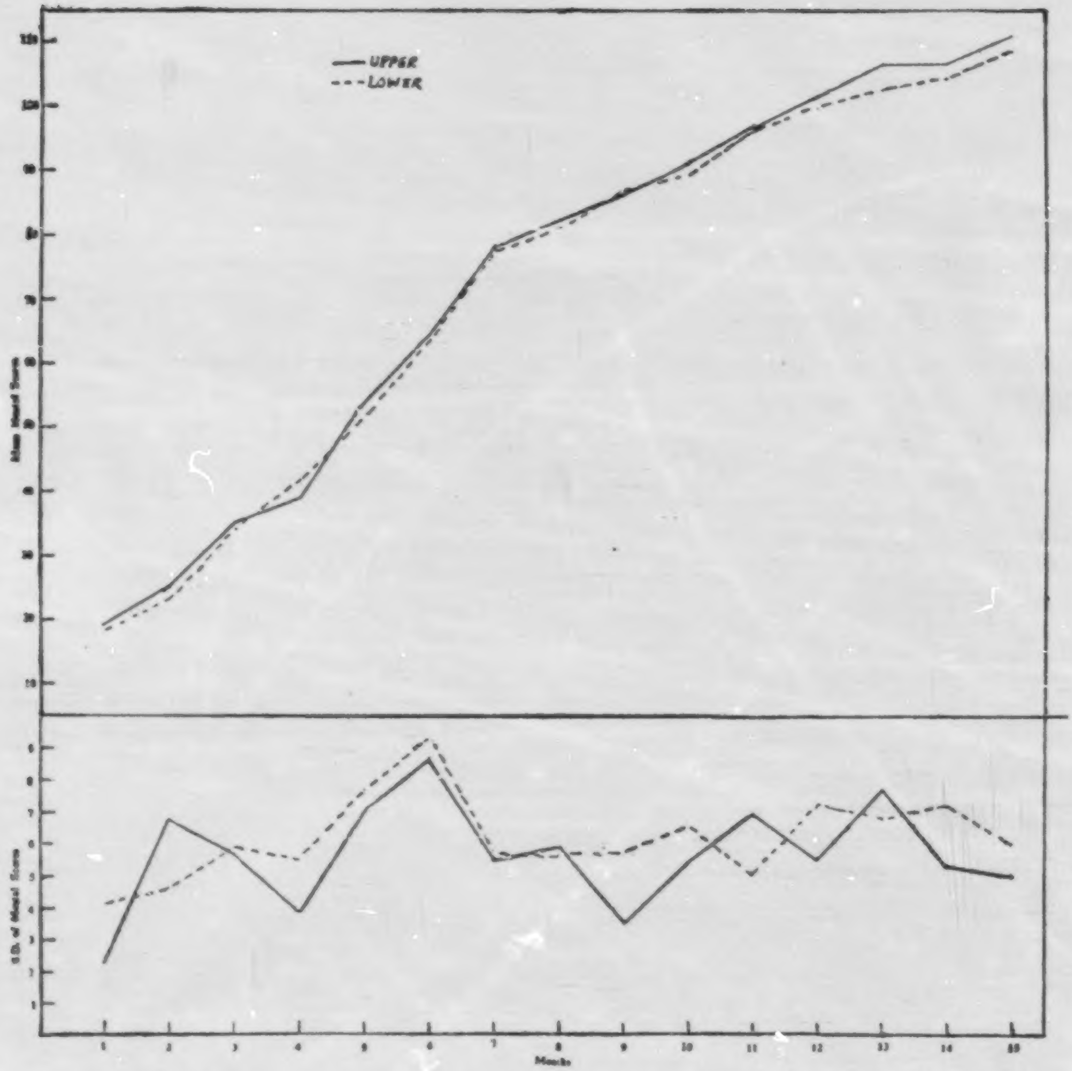
Graph B-9 : Mental Growth Speed Graphs of Boys and Girls from Upper S–E Group in Baroda (Urban)



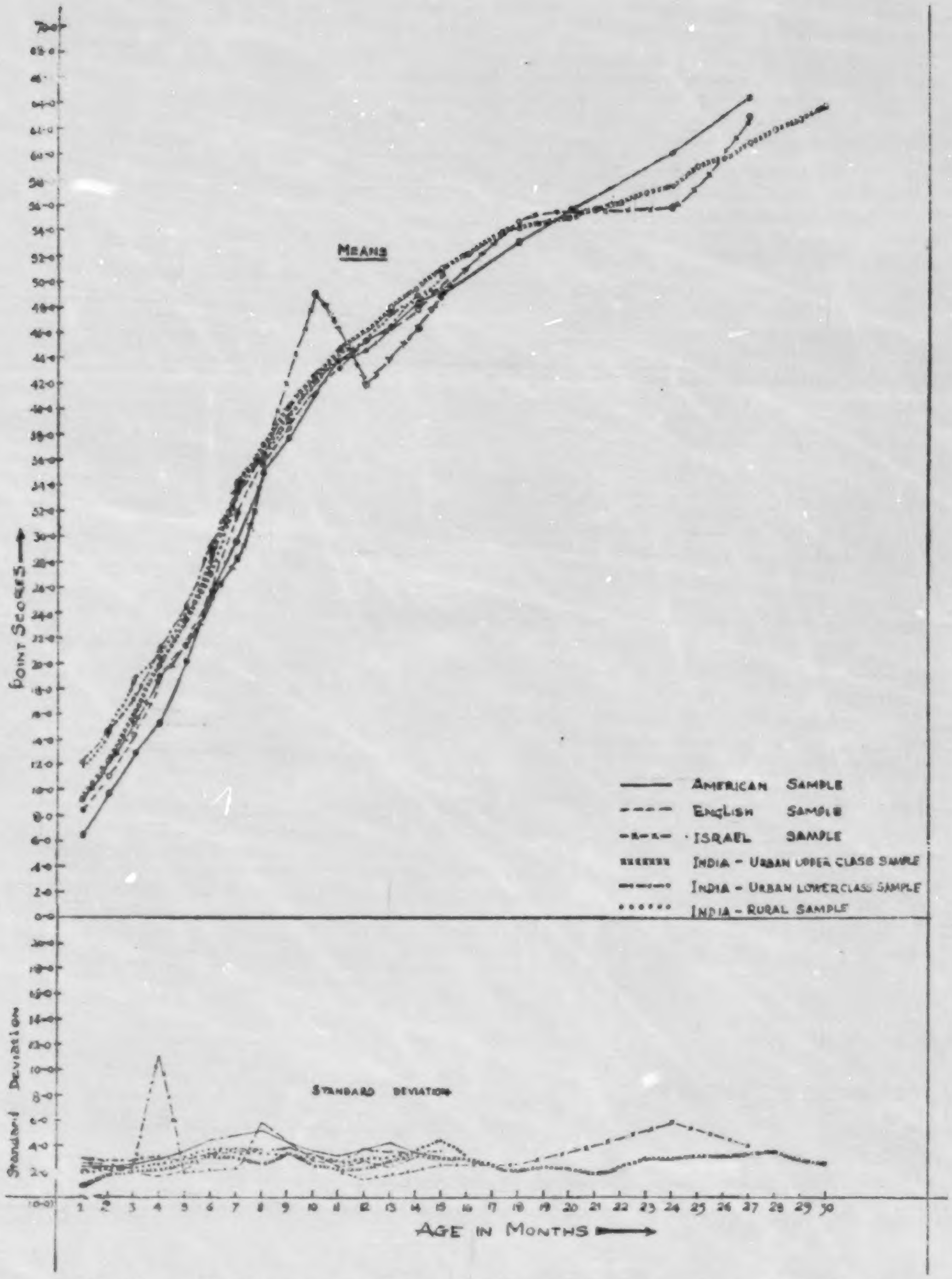
Graph B-10 : Graphs of Means and Standard Deviations of Mental Scores of Boys and Girls from Lower S-E Group in Baroda (Urban)



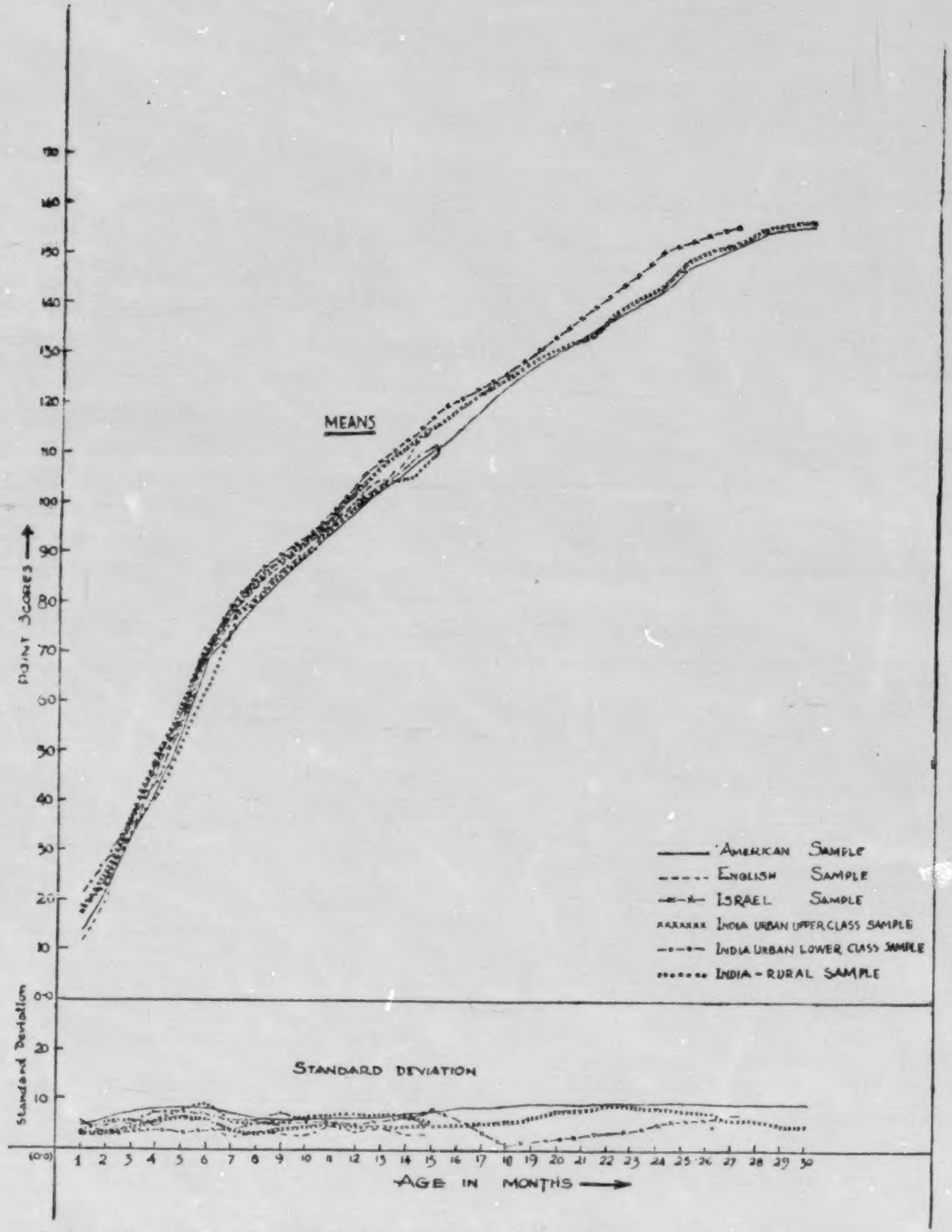
Graph B-11 : Graphs of Means and Standard Deviations of Mental Scores of Boys and Girls from Rural Areas



Graph B–12 : Graphs of Means and Standard Deviations of Mental Scores of Upper and Lower S–E Groups from Rural Areas



B-13 Means and Standard Deviations of Motor Performance Scores of Babies from U. S. A., U. K.. Israel and India.



B–14 Means and Standard Deviations of Mental Performance Scores of Babies from U. S. A., U. K., Israel and India.

APPENDIX-C

TABLE C 1 : PERCENTILE SCORES ON MOTOR SCALE FOR BOYS (ROUNDED FIGURES)

AGE IN MONTHS	PERCENTILE SCORES						
	3	10	25	50	75	90	97
1	7	8	8	9	10	10	11
2	9	10	11	12	14	15	16
3	12	13	14	16	17	18	20
4	16	17	18	20	21	22	23
5	18	20	21	23	25	26	28
6	22	24	26	28	30	32	34
7	27	29	31	33	35	37	38
8	32	33	35	37	38	40	41
9	31	34	37	40	43	45	48
10	37	38	40	42	44	46	47
11	40	41	43	44	46	47	49
12	41	43	44	46	47	49	50
13	43	44	46	48	49	51	53
14	44	45	47	49	52	53	55
15	45	47	49	51	53	55	56

Contd...

TABLE C-1: continued

AGE IN	PERCENTILE SCORES						
MONTHS	3	10	25	50	75	90	97
16	46	48	50	52	54	56	58
17	49	50	52	53	55	56	58
18	50	51	52	54	55	57	58
19	50	51	52	54	56	58	59
20	50	52	53	55	56	58	59
21	52	53	54	55	56	57	59
22	52	54	55	56	58	59	60
23	52	54	55	57	59	60	62
24	52	54	55	57	59	61	62
25	52	54	56	59	61	63	65
26	53	55	57	59	61	63	65
27	54	56	58	61	63	65	67
28	55	57	59	61	64	66	68
29	57	58	60	62	64	66	68
30	58	60	62	64	66	67	69

TABLE C-2 : PERCENTILE SCORES ON MOTOR SCALE FOR GIRLS (ROUNDED FIGURES)

AGE IN MONTHS	PERCENTILE SCORES 3	10	25	50	75	90	97
1	8	8	9	9	10	10	11
2	10	11	12	13	14	15	16
3	13	14	15	16	17	19	20
4	15	17	18	20	22	23	25
5	19	20	22	24	26	28	29
6	23	25	27	29	31	33	35
7	29	30	32	34	36	38	40
8	33	35	36	38	39	41	42
9	37	38	39	41	42	43	45
10	40	41	42	43	45	46	47
11	41	42	44	45	46	48	49
12	41	43	44	46	48	49	51
13	42	44	46	48	50	52	54
14	43	45	47	50	52	54	56
15	45	47	49	52	54	56	58

Conti..

Table C-2 continued :

AGE IN MONTHS	PERCENTILE SCORES						
	3	10	25	50	75	90	97
16	47	49	51	53	55	56	58
17	49	50	52	53	55	57	58
18	51	52	53	55	56	57	58
19	51	52	53	55	56	57	58
20	52	53	54	56	57	58	59
21	52	53	54	56	57	59	60
22	52	53	55	56	58	60	62
23	52	53	55	57	59	61	63
24	53	53	55	58	60	63	65
25	54	56	57	60	62	64	65
26	54	56	58	60	63	65	67
27	55	57	59	61	63	65	67
28	55	58	60	63	65	67	70
29	57	59	61	63	65	67	70
30	59	60	62	64	66	68	70

TABLE C-3 : DEVIATION MOTOR QUOTIENTS (DMQ)
EQUIVALENTS OF TOTAL POINT SCORES FOR
AGES 1-30 MONTHS

TOTAL POINT SCORE	DMQ MONTHS				
	1	2	3	4	5
1.					
2.					
3.					
4.					
5.					
6.	49.1				
7	65.1	52.6			
8	81.1	61.4			
9	97.1	70.1			
10	113.1	78.8	54.0		
11	129.1	87.6	61.8		
12	145.1	96.3	69.6		
13		105.1	77.4		
14		113.8	85.2	58.7	
15		122.6	93.0	65.8	

Table C-3 continued :

TOTAL POINT SCORE	DMQ MONTHS 1	2	3	4	5
16		131.3	100.8	73.0	57.0
17		140.0	108.6	80.2	62.9
18			116.4	87.4	68.7
19			124.2	94.5	74.5
20			132.0	101.7	80.4
21			139.8	108.9	86.2
22			147.6	116.1	92.1
23				123.2	97.9
24				130.4	103.7
25				137.6	109.6
26				144.8	115.4
27					121.3
28					127.1
29					132.9
30.					138.8
31					144.6

Table C-3 continued :

TOTAL POINT SCORE	DMQ MONTHS 6	7	8	9	10
20	55.6				
21	60.7				
22	65.8				
23	70.8				
24	75.9				
25	81.0	55.7			
26	86.1	60.9			
27	91.2	66.2			
28	96.2	71.4			
29	101.3	76.6			
30	106.4	81.9	56.7	55.1	
31	111.5	87.1	62.9	59.5	
32	116.6	92.3	69.0	64.0	
33	121.6	97.5	75.1	68.4	
34	126.7	102.8	81.2	72.8	
35	131.8	108.0	87.4	77.3	52.6

Table C-3 continued :

TOTAL POINT SCORE	DMQ MONTHS				
	6	7	8	9	10
36	136.9	113.2	93.5	81.7	58.8
37	142.0	118.5	99.6	86.1	65.1
38	147.0	123.7	105.8	90.6	71.4
39		128.9	111.9	95.0	77.7
40		134.1	118.0	99.4	83.9
41		139.4	124.2	103.9	90.2
42		144.6	130.3	108.3	96.5
43			136.4	112.7	102.8
44			142.5	117.2	109.0
45				121.6	115.3
46				126.0	121.6
47				130.4	127.9
48				134.9	134.1
49				139.3	140.4
50				143.7	146.7

Table C-3 continued

TOTAL POINT SCORE	DMQ MONTHS 11	12	13	14	15
39	58.8	53.6			
40	66.0	60.5	56.2	54.2	
41	73.3	67.3	61.7	59.0	
42	80.5	74.2	67.2	63.8	53.8
43	87.8	81.0	72.7	68.6	58.9
44	95.0	87.8	78.2	73.4	64.0
45	102.2	94.7	83.7	78.3	69.1
46	109.5	101.5	89.2	83.1	74.2
47	116.7	108.3	94.7	87.9	79.3
48	124.0	115.2	100.2	92.7	84.4
49	131.2	122.0	105.7	97.5	89.5
50	138.4	128.9	111.2	102.4	94.6
51	145.7	135.7	116.7	107.2	99.7
52		142.5	122.2	112.0	104.8
53			127.7	116.8	109.9
54			133.2	121.6	115.0
55			138.7	126.5	120.1
56			144.2	131.3	125.2
57				136.1	130.3
58				140.9	135.4
59				145.7	140.5
60					145.6

Table C-3 continued

TOTAL POINT SCORE	LMQ MONTHS 16	17	18	19	20
43	53.1				
44	58.2				
45	63.4				
46	68.5	53.0			
47	73.7	59.3		52.1	
48	78.8	65.7		58.5	
49	83.9	72.0	59.2	64.9	57.8
50	89.1	78.3	67.0	71.3	64.8
51	94.2	84.7	74.8	77.8	71.9
52	99.4	91.0	82.6	84.2	78.9
53	104.5	97.4	90.4	90.6	85.9
54	109.7	103.7	98.2	97.0	92.9
55	114.8	110.1	106.0	103.5	99.9
56	120.0	116.4	113.8	109.9	106.9
57	125.1	122.8	121.6	116.3	114.0
58	130.3	129.1	129.4	122.7	121.0
59	135.4	135.5	137.2	129.2	128.0
60	140.5	141.8	145.0	135.6	135.0
61	145.7	.		142.0	142.0
.	.	.			
.	.				
.	.				
.	.	.			
.					

Table C-3 continued

TOTAL POINT SCORE	DMQ MONTHS 21	22	23	24	25
49			57.4	55.9	52.0
50	52.1	58.1	62.8	61.1	56.9
51	60.7	64.8	68.2	66.3	61.7
52	69.3	71.5	73.6	71.5	66.5
53	77.9	78.2	79.0	76.7	71.3
54	86.5	84.9	84.4	81.9	76.1
55	95.1	91.7	89.8	87.1	80.9
56	103.7	98.4	95.2	92.3	85.7
57	112.3	105.1	100.6	97.5	90.5
58	120.9	111.8	106.0	102.6	95.3
59	129.5	118.6	111.4	107.8	100.1
60	138.1	125.3	116.8	113.0	104.9
61	146.7	132.0	122.2	118.2	109.7
62		138.7	127.6	123.4	114.5
63		145.4	133.0	128.6	119.3
64			138.4	133.8	124.1
65			143.8	139.0	128.9
66				144.2	133.7
67					138.5

Table C-3 continued :

TOTAL POINT SCORE	DMQ MONTHS				
	26	27	28	29	30
50	52.6				
51	57.5	53.5			
52	62.4	58.2	55.4		
53	67.3	62.9	59.9		
54	72.2	67.5	64.4	54.9	
55	77.1	72.2	68.9	60.1	
56	82.0	76.9	73.4	65.3	57.1
57	86.9	81.6	77.9	70.5	62.6
58	91.8	86.2	82.4	75.7	68.0
59	96.7	90.9	86.9	80.9	73.4
60	101.6	95.6	91.4	86.1	78.9
61	106.5	100.3	95.9	91.3	84.3
62	111.4	105.0	100.5	96.5	89.8
63	116.2	109.6	105.0	101.7	95.2
64	121.1	114.3	109.5	106.9	100.7
65	126.0	119.0	114.0	112.1	106.1
66	130.9	123.7	118.5	117.2	111.5
67	135.8	128.4	123.0	122.4	117.0

TABLE C-4: MOTOR SCALE ARRANGED IN DEVELOPMENTAL SEQUENCE OF DIFFICULTY ORDER FOR 50% PASS WITH LIMITS FOR 3% to 97% PASS

N.B. : Sign (-) after a figure implies the placement of the item earlier than.
Sign (+) after a figure implies the placement of the item later than.

S.No.	Highly differing Bayley placement	50%	(3% -	97%)	Item Description
		Age placements in months			
1		.5*-	.1*-	1.0*-	Lifts head at the shoulder
2		.5*-	.1*-	1.0*-	Postural adjustment when held at shoulder
3		.5*-	.1*-	1.0*-	Arm thrusts in play
4		.5*-	.1*-	1.0*-	Leg thrusts in play
5		.56*-	.1*-	1.1	Lateranl head movements
6	2.2	.62*-	.1*-	3.4	Turns from side to back
7		.67*-	.1*-	1.6	Head errect and vertical
8		.85*	.1*-	1.7	Crawling movements
9		.89*	.1*-	1.98	Retains red ring
10		1.49	.15*	3.1	Head erect and steady
11	2.7	1.81	.3*	2.9	Sits with support
12		1.9	.17*	3.7	Dorsal suspension lifts head
13		1.9	.3*	3.9	Prone - Elevates self by arms.

Contd...

Table C-4 continued

S.No.	Highly differing Bayley placement	50%	(3% -	97%)	Item Description
		Age placements in months			
14	2.8	2.2	1.1	3.7	Holds head steady
15		2.5	.35	3.9	Hands predominantly open
16	3.7	2.8	1.2	4.89	Sits with slight support
17	3.9	2.8	1.4	4.89	Cube : ulner-Palmer
18	4.0	3.4	.5*	5.8	Turns from back to side
19	4.5	3.5	2.1	4.9	Head balanced
20	5.1	4.2	2.5	6.9	Effort to sit
21		4.7	3.3	6.3	Partial thumb opposition (Radial-palmer)
22		4.9	3.0	6.9	Pulls to sitting position
23		4.9	3.3	6.9	Sits alone momentarily
24	5.8	4.97	3.2	6.5	Rotates wrists
25		5.1	3.5	6.9	Unilateral reaching

* Placements are extrapolated from available data

Table C-4 continued :

S.No.	Highly differing Bayley placement	50%	(3% -	97%)	Item Description
26	7.0	5.4	2.7	9.96	Rolls from back to stomach
27		5.6	4.1	7.2	Attempts to secure pellet
28		5.7	4.2	7.8	Sits alone 30 seconds or more
29	8.0	6.1	3.7	8.99	Pulls to standing position
30	6.9	6.2	5.0	7.9	Sits alone steadily
31	7.2	6.5	5.0	9.2	Sits alone - good coordination
32	7.3	6.5	5.0	8.8	Complete thumb opposition (Radial - Digital)
33	7.8	6.6	4.2	8.99	Early stepping movements
34	7.2	6.6	5.1	8.9	Scoops pellet
35	7.6	6.9	5.1	9.99	Prewalking progression
36		7.4	5.7	9.2	Partial finger prehension
37		8.2	5.8	10.98	Raises self to sitting position
38		8.4	5.99	11.95	Combines cubes or spoons; midline
39	9.2	8.4	6.1	10.7	Stepping movements
40		8.5	6.3	10.99	Stands up by furniture
41		8.6	6.7	10.9	Fine prehension - pellet
42		9.4	6.7	12.7	Pat-a-cake : midline skill
43		9.7	7.6	13.0	Walks with help
44		9.7	7.8	12.9	Sits down

Table C-4 continued :

S.No.	Highly differing Bayley placement	50% Age placements in months	(3% - 97%)		Item description
45		10.8	8.3	15.9	Stands alone
46		12.3	9.1	17.3	Aufstehn - I
47	11.8	12.5	9.8	17.4	Walks alone
48		12.6	9.5	16.7	Throws a ball
49		13.4	10.6	17.7	Walks sideways
50		14.1	11.2	19.5	Walks backwards
51	18.3	14.6	11.9	19.5	Stands on right foot with help
52	18.3	14.7	11.9	19.5	Stands on left foot with help
53	18.7	15.7	12.2	24.4	Walks upstairs with help
54	18.9	16.5	12.5	24.5	Walks downstairs with help
55	20.9	18.95	14.2	29.2	Tries to stand on walking board
56		20.4	12.3	28.7+	Aufestehn II
57	22.9	23.95	19.5	29.0+	Walks downstairs alone; marks time
58	22.7	24.4	19.96	29.6+	Walks upstairs alone; marks time
59		26.1	19.2	29.8+	Walks with one foot on board
60	27.6	26.5	18.7	29.0+	Stands on left foot alone
61	27.7	26.6	19.9	29.0+	Stands on right foot alone

Table C-4 continued :

S.No.	Highly differing Bayley placement	50%	(3% - 97%)		Item description
		Age placements in months			
62		26.6	21.1	29.0+	Walks on line : General direction
63		26.8	20.5	29.7+	Stands on walking board with both feet
64	26.4	28.7	20.98	28.7+	Jumps off floor, both feet
65		29.5	21.4	29.5+	Walks on tiptoe
66		29.9+	24.9	29.9+	Jumps from chair
67		29.9+	15.5	29.4+	Aufstehn III

TABLE C-5 : PERCENTILE SCORES ON MENTAL SCALE FOR BOYS (ROUNDED FIRUES)

AGE IN MONTHS	PERCENTILE SCORES 3	10	25	50	75	90	97
1	9	12	14	17	20	22	24
2	19	21	23	25	28	30	32
3	28	30	33	36	39	41	44
4	39	41	44	47	50	53	56
5	47	50	54	58	62	66	70
6	59	62	66	71	75	79	82
7	73	74	77	79	82	84	86
8	79	81	82	84	86	87	89
9	79	82	85	87	90	93	95
10	84	87	89	92	94	97	99
11	90	92	95	98	101	104	106
12	94	97	[illegible]	103	106	109	112
13	100	102	105	108	111	114	116
14	106	108	110	112	113	117	119
15	107	110	112	115	118	120	122

Contd...

Table C-5 continued :

AGE IN	PERCENTILE SCORES						
MONTHS	3	10	25	50	75	90	97
16	111	113	116	118	121	124	126
17	114	117	119	122	125	128	131
18	115	118	121	125	128	131	134
19	116	120	124	128	133	136	140
20	116	121	125	130	136	140	145
21	119	124	128	133	138	143	147
22	122	127	132	138	144	149	154
23	126	130	135	141	146	151	156
24	130	135	139	144	149	153	158
25	134	138	143	148	153	158	162
26	137	142	146	151	156	160	165
27	142	145	149	153	158	161	165
28	143	147	150	155	159	163	166
29	148	150	153	157	160	163	166
30	148	151	154	157	160	163	166

TABLE C-6 : PERCENTILE SCORES ON MENTAL SCALE FOR GIRLS (ROUNDED FIGURES)

AGE IN MONTHS	PERCENTILE SCORES 3	10	25	50	75	90	97
1	12	14	15	17	19	20	22
2	21	23	25	27	29	31	33
3	31	33	35	38	40	43	45
4	37	40	44	48	52	56	59
5	50	54	57	61	65	68	72
6	62	65	68	72	76	79	82
7	74	76	78	80	82	84	86
8	80	81	83	85	86	88	90
9	83	85	87	89	91	93	95
10	87	90	92	95	98	100	103
11	91	93	96	99	102	105	107
12	95	98	101	104	107	109	112
13	101	103	106	109	112	115	117
14	105	107	110	113	116	119	122
15	107	110	113	117	120	123	126

Contd...

Table C-6 continued :

AGE IN MONTHS	PERCENTILE SCORES 3	10	25	50	75	90	97
16	111	114	117	121	124	127	130
17	112	115	119	123	127	131	135
18	116	119	123	127	131	135	139
19	117	121	126	131	135	140	144
20	119	123	128	133	138	143	147
21	119	124	129	134	139	144	149
22	122	127	133	138	144	150	155
23	125	130	136	142	148	154	159
24	127	133	139	145	151	157	163
25	136	140	145	150	155	160	165
26	138	143	147	152	157	162	166
27	142	146	150	154	159	163	167
28	145	149	152	156	160	163	167
29	148	151	154	157	160	163	167
30	148	151	154	157	161	164	167

TABLE C-7 : DEVIATION MENTAL QUOTIENTS (DMEQ) EQUIVALENTS OF TOTAL POINT SCORES FOR AGES 1-30 MONTHS

TOTAL POINT SCORE	DMEQ MONTHS				
	1	2	3	4	5
1					
2					
3					
4					
5					
6					
7					
8	56.4				
9	61.2				
10	66.0				
11	70.8				
12	75.6				
13	80.4				
14	85.1				
15	89.9				
16	94.7	52.9			
17	99.5	57.6			
18	104.3	62.4			
19	109.1	67.1			
20	113.9	71.9			

Table C-7 continued :

TOTAL POINT SCORE	DMEQ MONTHS 1	2	3	4	5
21	118.7	76.6			
22	123.5	81.4			
23	128.3	86.1			
24	133.1	90.9			
25	137.8	95.6	55.3		
26	142.6	100.4	59.2		
27	147.4	105.1	63.1		
28		109.9	66.9		
29		114.6	70.8		
30		11[illegible].4	74.7		
31		124.1	78.6		
32		128.9	82.5	52.4	
33		133.6	86.4	55.5	
34		138.4	90.3	58.5	
35		143.1	94.2	61.6	
36		147.9	98.1	64.6	
37			102.0	67.7	
38			105.9	70.8	
39			109.8	73.8	
40			113.7	76.9	

Table C-7 : Continued :

TOTAL POINT SCORE		DMEQ MONTHS			
	1	2	3	4	5
41			117.6	79.9	
42			121.5	83.0	54.4
43			125.3	86.0	57.0
44			129.2	89.1	59.6
45			133.1	92.2	62.2
46			137.0	95.2	64.8
47			140.9	98.3	67.5
48			144.8	101.3	70.1
49				104.4	72.7
50				107.5	75.3
51				110.5	77.9
52				113.6	80.5
53				116.6	83.1
54				119.7	85.8
55				122.8	88.4
56				125.8	91.0
57				128.9	93.6
58				131.9	96.2
59				135.0	98.8
60				138.1	101.4

Table C-7 continued :

TOTAL POINT SCORE	DMEQ MONTHS				
	1	2	3	4	5
61				141.1	104.1
62				144.2	106.7
63				147.2	109.3
64					111.9
65					114.5
66					117.1
67					119.7
68					122.4
69					125.0
70					127.6
71					130.2
72					132.8
73					135.4
74					138.0
75					140.7
76					143.3
77					145.9

Table C-7 continued :

TOTAL POINT SCORE	DMEQ MONTHS				
	6	7	8	9	10
54	53.9				
55	56.6				
56	59.3				
57	62.0				
58	64.7				
59	67.4				
60	70.0				
61	72.7				
62	75.4				
63	78.1				
64	80.8				
65	83.5				
66	86.2				
67	88.9				
68	91.6				
69	94.2				
70	96.9	54.7			
71	99.6	59.4			
72	102.3	64.1			
73	105.0	68.8			

Table C-7 continued :

TOTAL POINT SCORE	DMEQ MONTHS				
	6	7	8	9	10
74	107.7	73.5			
75	110.4	78.2			
76	113.1	82.9			
77	115.8	87.6	56.7	53.3	
78	118.4	92.3	62.7	57.5	
79	121.1	97.0	68.7	61.7	
80	123.8	101.6	74.6	65.9	52.0
81	126.5	106.3	80.6	70.1	55.7
82	129.2	111.0	86.6	74.2	59.4
83	131.9	115.7	92.5	78.4	63.1
84	134.6	120.4	98.5	82.6	66.8
85	137.3	125.1	104.5	86.8	70.5
86	140.0	129.8	110.4	91.0	74.2
87	142.6	134.5	116.4	95.2	77.8
88	145.3	139.2	122.4	99.4	81.5
89		143.9	128.4	103.6	85.2
90			134.3	107.7	88.9

Table C-7 continued :

TOTAL POINT SCORE	DMEQ MONTHS				
	6	7	8	9	10
91			140.3	111.9	92.6
92			146.3	116.1	96.3
93				120.3	100.0
94				124.5	103.6
95				128.7	107.3
96				132.9	111.0
97				137.1	114.7
98				141.3	118.4
99				145.4	122.1
100					125.8
101					129.5
102					133.1
103					136.8
104					140.5
105					144.2
106					147.9

Table C-7 continued :

TOTAL POINT SCORE	DMEQ MONTHS				
	11	12	13	14	15
86	55.5				
87	59.1				
88	62.7				
89	66.2				
90	69.8	55.2			
91	73.4	58.6			
92	77.0	62.0			
93	80.6	65.4			
94	84.2	68.8			
95	87.8	72.2	52.1		
96	91.4	75.6	55.7		
97	94.9	78.9	59.3		
98	98.5	82.3	62.8		
99	102.1	85.7	66.4		
100	105.7	89.1	70.0		
101	109.3	92.5	73.5		
102	112.9	95.9	77.1	55.9	
103	116.5	99.3	80.7	60.0	54.6
104	120.1	102.7	84.2	64.1	58.2
105	123.6	106.1	87.8	68.2	61.9

Table C-7 continued :

TOTAL POINT SCORE	DMEQ MONTHS 11	12	13	14	15
106	127.2	109.5	91.3	72.3	65.5
107	130.8	112.8	94.9	76.4	69.1
108	134.4	116.2	98.5	80.5	72.8
109	138.0	119.6	102.0	84.6	76.4
110	141.6	123.0	105.6	88.7	80.0
111	145.2	126.4	109.2	92.8	83.6
112		129.8	112.7	96.9	87.3
113		133.2	116.3	101.0	90.9
114		136.6	119.8	105.1	94.5
115		140.0	123.4	109.2	98.1
116		143.4	127.0	113.3	101.8
117		146.7	130.5	117.4	105.4
118			134.1	121.5	109.0
119			137.7	125.6	112.7
120			141.2	129.7	116.3
121			144.8	133.8	119.9
122				137.9	123.5
123				142.1	127.2
124				146.2	130.8
125					134.4
126					138.1
127					141.7
128					145.3

Table C-7 continued :

TOTAL POINT SCORE	DMEQ MONTHS				
	16	17	18	19	20
106	53.2				
107	56.7	52.2			
108	60.2	55.2			
109	63.7	58.2	52.3		53.3
110	67.2	61.3	55.1	53.8	55.4
111	70.7	64.3	58.0	56.2	57.6
112	74,2	67.3	60.8	58.6	59.6
113	77.7	70.4	63.6	61.0	61.7
114	81.2	73.4	66.4	63,4	63.8
115	84.7	76.4	69.2	65.8	65.9
116	88.2	79.5	72.1	68.2	67.9
117	91.7	82.5	74.9	70.6	70.1
118	95.1	85.5	77.7	73.1	72.1
119	98.6	88.5	80.5	75.5	74.2
120	102.1	91.6	83.4	77.9	76.3

Table C-7 continued :

TOTAL POINT SCORE	DMEQ MONTHS 16	17	18	19	20
121	105.6	94.6	86.2	80.3	78.4
122	109.1	97.6	89.0	82.7	80.5
123	112.6	100.7	91.8	85.1	82.6
124	116.1	103.7	94.6	87.5	84.6
125	119.6	106.7	97.5	89.9	86.7
126	123.1	109.8	100.3	92.3	88.8
127	126.6	112.8	103.1	94.7	90.9
128	130.1	115.8	105.9	97.1	93.0
129	133.6	118.8	108.7	99.5	95.1
130	137.1	121.9	111.6	101.9	97.1
131	140.6	124.9	114.4	104.3	99.2
132	144.1	127.9	117.2	106.7	101.3
133	147.5	131.0	120.0	109.1	103.4
134		134.0	122.9	111.5	105.5
135		137.0	125.7	114.0	107.6

Table C-7 continued :

TOTAL POINT SCORE	DMEQ MONTHS 16	17	18	19	20
136		140.1	128.5	116.4	109.7
137		143.1	131.3	118.8	111.7
138		146.1	134.1	121.2	113.8
139			137.0	123.6	115.9
140			139.8	126.0	118.0
141			142.6	128.4	120.1
142			145.4	130.8	122.2
143				133.2	124.3
144				135.6	126.3
145				138.0	128.4
146				140.4	130.5
147				142.8	132.6
148				145.2	134.7
149				147.6	136.8
150					138.9
151					140.9
152					143.0
153					145.1
154					147.2

Table C-7 continued :

TOTAL POINT SCORE	DMEQ MONTHS 21	22	23	24	25
111	52.6				
112	54.7				
113	56.8	53.0			
114	58.9	54.9			
115	61.0	56.8			
116	63.1	58.6	52.2		
117	65.2	60.5	54.1		
118	67.3	62.3	56.0		
119	69.4	64.2	57.9		
120	71.5	66.1	59.8	52.9	
121	73.6	67.9	61.7	54.8	
122	75.7	69.8	63.6	56.8	
123	77.8	71.6	65.5	58.7	
124	79.9	73.5	67.4	60.6	
125	82.0	75.4	69.2	62.5	

Table C-7 continued :

TOTAL POINT SCORE	DMEQ MONTHS				
	21	22	23	24	25
126	84.1	77.2	71.1	64.5	52.0
127	86.2	79.1	73.0	66.4	54.1
128	88.3	80.9	74.9	68.3	56.2
129	90.4	82.8	76.8	70.3	58.3
130	92.5	84.7	78.7	72.2	60.4
131	94.6	86.5	80.6	74.1	62.4
132	96.7	88.4	82.5	76.0	64.6
133	98.8	90.3	84.4	78.0	66.6
134	100.9	92.1	86.3	79.9	68.7
135	103.0	94.0	88.2	81.8	70.8
136	105.1	95.8	90.1	83.7	72.9
137	107.2	97.7	91.9	85.7	75.0
138	109.3	99.6	93.8	87.6	77.1
139	111.4	101.4	95.7	89.5	79.2
140	113.5	103.3	97.6	91.5	81.2
141	115.6	105.1	99.5	93.4	83.3
142	117.7	107.0	101.4	95.3	85.4
143	119.8	108.9	103.3	97.2	87.5

Table C-7 continued:

TOTAL POINT SCORE	DMEQ MONTHS				
	21	22	23	24	25
144	121.9	110.7	105.2	99.2	89.6
145	124.0	112.6	107.1	101.1	91.7
146	126.1	114.4	109.0	103.0	93.8
147	128.2	116.3	110.9	105.0	95.9
148	130.3	118.2	112.7	106.9	98.0
149	132.4	120.0	114.6	108.8	100.0
150	134.5	121.9	116.5	110.7	102.1
151	136.6	123.7	118.4	112.7	104.2
152	138.7	125.6	120.3	114.6	106.3
153	140.8	127.5	122.2	116.5	108.4
154	142.9	129.3	124.1	118.4	110.5
155	145.0	131.2	126.0	120.4	112.6
156	147.1	133.0	127.9	122.3	114.7
157		134.9	129.8	124.2	116.8
158		136.8	131.7	126.2	118.8
159		138.6	133.6	128.1	120.9
160		140.5	135.4	130.0	123.0
161		142.3	137.3	131.9	125.1
162		144.2	139.2	133.9	127.2
163		146.1	141.1	135.8	129.3

Table C-7 continued :

TOTAL POINT SCORE	DMEQ MONTHS 26	27	28	29	30
130	53.5				
131	55.6				
132	57.8				
133	60.0				
134	62.1				
135	64.3	52.5			
136	66.5	55.0			
137	68.7	57.5	52.6		
138	70.8	60.1	55.2		
139	73.0	62.6	57.8		
140	75.2	65.2	60.4		
141	77.3	67.7	63.0		
142	79.5	70.2	65.6		
143	81.7	72.8	68.2	33.4	53.7
144	83.8	75.3	70.8	56.8	56.9
145	86.0	77.9	73.4	60.2	60.2
146	88.2	80.4	75.9	63.6	63.5
147	90.4	82.9	78.5	66.9	66.8

Table C-7 continued :

TOTAL POINT SCORE	DMEQ MONTHS				
	26	27	28	29	30
148	92.5	85.5	81.1	70.3	70.0
149	94.7	88.0	83.7	73.7	73.3
150	96.9	90.6	86.3	77.0	76.6
151	99.0	93.1	88.9	80.4	79.8
152	101.2	95.6	91.5	83.8	83.1
153	103.4	98.2	94.1	87.1	86.4
154	105.6	100.7	96.7	90.5	89.7
155	107.7	103.3	99.2	93.9	92.9
156	109.9	105.8	101.8	97.2	96.2
157	112.1	108.3	104.4	100.6	99.5
158	114.2	110.9	107.0	104.0	102.7
159	116.4	113.4	109.6	107.3	106.0
160	118.6	115.9	112.2	110.7	109.3
161	120.8	118.5	114.8	114.1	112.6
162	122.9	121.0	117.4	117.4	115.8
163	125.1	123.6	120.0	120.8	119.1

TABLE C-8 MENTAL SCALE ARRANGED IN DEVELOPMENTAL SEQUENCE OF DIFFICULTY ORDER FOR 50% PASS, WITH LIMITS FOR 3% AND 97%.

N.B.: Sign (-) after a figure implies the placement of the item earlier than.
Sign (+) after a figure implies the placement of the item later than.

S.No.	Highly Differing Bayley Placement	50% Age Placements in months	(3% - 97%)	Item Description
1		.5*	.1*- 1.0*-	Regards a person momentarilly.
2		.5*	.1*- 1.0*-	Responds to sound of bell
3		.5*	.1*- 1.0*-	Momentary regard of red ring
4		.5*	.1*- 1.0*-	Quiets when picked up
5		.5*	.1*- 1.0*-	Responds to sound of rattle
6		.5*	.1*- 1.0*-	Prolonged regard of red ring
7		.5*	.1*- 1.0*-	Responds to voice
8		.6*	.1* 1.1	Responds to sound : light switch
9		.7*	.1*- 1.4	Horimontal eye coordination : Red ring

* Placements are extrapolated from the available data.

Table C-8 continued :

S.No.	Highly Differing Bayley Placement	50%	(3% - 97%)	Item Description
		Age placements in months		
10		.7*	.1*- 1.6	Follows moving person
11		.8*	.1*- 1.9	Vocalises once or twice
12		.8*	.1*- 1.9	Free inspection of surroundings
13		.8*	.1*- 2.8	Circular eye coordination : Ring
14		.96*	.1*- 2.8	Horizontal eye coordination : Light
15		1.1	.1*- 2.9	Vertical eye coordination : light
16		1.3*	.1*- 2.4	Vertical eye coordination : red ring
17		1.3	.1*- 2.8	Turns eyes to red ring
18		1.4	.1*- 3.0	Circular eye coordination : light
19		1.4	.1*- 2.7	Social smile : E talks and smiles

* Placements are extrapolated from the available data

Table C-8 continued :

S.No.	Highly Differing Bayley Placement	50% (3% - 97%) Age Placements in months			Item Description
		50%	3%	97%	
20		1.4	.1*	2.9	Vocalizes more than three times
21		1.5	.15*	2.8	Anticipatory excitement
22	2.3	1.5	.2*	2.8	Reacts to paper on face
23	2.5	1.7	.6*	3.6	Searches with eyes for sound
24		1.7	1.0	3.3	Social smile : E smiles, quiet
25		1.9	.2*	3.9	Turns eyes to light
26	2.6	2.0	1.1	3.7	Vocalizes to E's social smile and talk
27		2.2	1.1	3.7	Vocalizes two syllables
28		2.3	1.1	3.8	Visually recognises mother
29		2.5	1.2	3.7	Anticipatory adjustment to being lifted
30		2.5	1.1	4.5	Reacts to disappearance of face
31	1.9	2.6	.6*	3.9	Blinks at shadow of hand
32		2.6	1.1	3.9	Eyes follow pencil
33		2.6	1.5	3.9	Regards cube
34		2.8	1.5	4.1	Manipulates red ring
35		2.8	1.3	4.1	Glances from one object to another

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* These placements are extrapolated from the available data.

Table C-8 continued :

S.No.	Highly Differing Bayley Placement	50%	(3% - 97%)		Item Description
		Age Placements in moths			
36		2.8	1.2	4.9	Reaches for dangling ring
37		2.9	1.8	4.7	Simple play with rattle
38		2.9	1.5	4.7	Fingers hand in play
39		3.0	2.0	4.7	Follows vanishing ring : Dangling
40		3.2	2.1	4.9	Follows vanishing spoon
41		3.4	2.1	4.9	Aware of strange situation
42		3.5	2.1	4.9	Eyes follow ball across table
43		3.5	2.1	5.3	Carries ring to mouth
44		3.5	2.2	4.9	Manipulates table edge slightly
45		3.5	2.2	6.0	Inspects own hands
46		3.8	3.0	5.8	Turns head to sound of bell
47		3.9	3.0	5.7	Turns head to sound of rattle
48		4.1	2.9	5.8	Closes on dangling ring
49		4.3	3.1	5.96	Reaches for cube
50		4.3	3.0	5.9	Mirror image approach
51		4.4	3.1	6.3	Active table manipulation

Table C-8 continued

S.No.	Highly Differing Bayley Placement	50%	(3% -	97%)	Item Description
		Age Placements in months			
52		4.4	3.1	5.9	Exploitive paper play
53		4.5	3.1	6.2	Eye cooperation in reaching
54		4.6	3.2	6.5	Regards pellet
55		4.6	3.1	6.9	Vocalizes attitudes
56	5.5	4.8	3.3	7.0	Likes Frolic play
57		4.8	3.1	7.0	Retains two cubes
58		4.9	3.3	6.5	Picks up cube
59		4.9	3.4	6.9	Discriminates strangers
60		5.0	3.4	6.8	Turns head after fallen spoon
61	5-6	5.0	3.9	6.7	Sustained inspection of ring
62		5.1	3.6	6.95	Recovers rattle in crib
63		5.2	3.6	6.9	Reaches persistently
64		5.3	4.0	6.8	Lifts cup
65		5.5	4.1	6.9	Reaches for second cube
66		5.5	4.1	7.0	Transfers object hand to hand
67		5.5	4.1	7.2	Exploitive string play
68		5.6	3.7	7.4	Smiles at mirror image
69		5.6	4.1	7.0	Bangs in play
70	6.2	5.6	4.1	7.5	Interest in sound production

Table C-8 continued

S.No.		Highly Differing Bayley Placement	50%	(3% - 97%)		Item Description
			Age Placements in months			
71			5.7	4.2	6.98	Picks up cube deftly & directly
72		6.4	5.8	4.2	8.8	Lifts cup with handle
73			5.9	4.8	7.9	Pulls string : secures ring
74		6.7	5.99	4.5	7.7	Looks for fallen spoon
75			6.1	4.4	8.6	Retains two of three cubes offered
76	6.2-7.1	7.0	6.3	4.6	9.2	Playful response to mirror
77			6.5	5.0	8.4	Manipulates Bell : interest in details
78		7.6	6.9	5.2	9.9	Cooperates in games
79			7.1	5.0	9.7	Vocalizes 4 different syllables
80			7.1	5.3	9.4	Pulls string adaptively and secures ring
81		8.4	7.1	5.1	9.0	Listens selectively to familiar words
82			7.4	5.2	9.9	Attempts to secure 3 cubes
83		8.6	7.5	6.0	9.6	Uncovers toy
84			7.7	6.0	10.7	Rings bell purposively
85		9.3	8.3	6.1	11.7	Adjusts to Wo[illegible]
86		6.5	8.9	5.0	8.9	Attends to scribbling
87		9.5	8.9	7.1	12.2	Fingers hole in peg board
88			8.98	5.7	11.9	Says 'da-da' or equivalent

Table C-8 continued

S.No.	Highly Differing Bayley Placement	50%	(3% - 97%)		Item Description
		Age Placements in months			
89	9.7	9.0	7.1	12.2	Picks up cup : secures cube
90	10.7	9.7	7.3	12.6	Inhibits on command
91	11.6	9.9	8.2	12.1	Looks at pictures in book
92		9.97	7.7	11.99	Looks for contents of box
93	9.6	10.2	7.3	12.8	Puts cube in cup on command
94	10.8	10.2	8.2	12.8	Stirs with spoon in imitation
95		10.5	8.2	13.7	Repeats performance laughed at
96		10.6	8.3	13.6	Unwraps cube
97	12.3	10.7	8.6	13.6	Uses expressive jargon
98		10.8	8.9	13.8	Holds crayon adaptively
99		10.9	9.0	13.5	Attempts to imitate scribble
100	13.6	10.98	9.1	13.9	Turns pages of books
101	12.7	11.1	8.6	15.6	Dangles ring by string
102	11.9	11.3	8.9	14.6	Pushes car along
103		11.9	9.2	15.7	Immitates words
104		11.9	9.3	14.7	3 or more blocks in cup
105	13.7	12.0	9.3	16.9	Pats whistle doll in immitation
106		12.1	9.3	14.97	Uncovers square box

Table C-8 continued

S.No.	Highly Differing Bayley Placement	50%	(3% - 97%)		Item Description
107	13.6	12.5	10.3	15.5	Puts beads in box (6 of 8)
108	14.0	13.1	10.6	16.5	Spontaneous scribble
109	14.2	13.1	10.7	16.4	Removes pellet from bottle
110	15.4	13.3	11.1	15.98	Closes round box
111		13.4	11.0	15.95	Places one peg repeatedly
112	16.2	13.67	11.1	18.3	Uses gestures to make wants known
113		13.71	11.0	16.99	Builds tower of 2 cubes
114		14.1	11.2	19.1	Says two words
115		14.1	11.4	18.8	Shows shoes, or other clothing or own toy
116	13.9	14.9	12.0	17.9	One round block in Bayley board
117	13.7	15.1	11.1	17.9	Adjusts round block in 3 hole board
118	17.8	15.3	12.0	21.6	Attains toy with stick
119	16.8	16.2	12.7	22.2	Builds tower of 3 cubes
120	18.6	16.4	13.5	22.2	Immitates stroke
121		16.5	13.99	19.9	Pegs placed in 70 seconds
122	18.5	16.8	13.7	24.4	Pink form board : places round block
123	16.2	17.1	13.2	21.9	Two round blocks in blue board

Table C-8 continued

S.No.	Highly Differing Bayley Placement	50%	(3% - 97%)		Item Description
		Age Placements in months			
124	19.1	17.5	12.6	24.8	Uses words to make wants known
125	19.5	17.96	14.4	24.5	Follows directions : doll
126	16.9	18.2	14.8	23.1	Pegs placed in 42 seconds
127		18.6	15.4	23.8+	Blue board : also two squares (Blue board: two rounds and two squares)
128	20.6	19.2	15.3	24.3	Points to parts of the doll
129	17.9	20.4	13.5	26.3	Names one object
130		20.8	15.8	25.7	Blue board : places six blocks
131	22.5	20.8	16.1	26.7	Differentiates a scribble and a stroke
132		20.9	15.8	27.2	Pink form board: completes
133		21.0	16.4	25.7	Selects box : containing Kitty.
134	22.6	21.2	15.8	28.8	Sentence of two words
135	19.1	21.3	15.2	26.7	Names one picture
136		21.4	16.7	29.5	Pegs placed in 30 seconds
137	24.3	22.3	17.6	26.9	Discriminates between cup & plate
138	21.9	22.6	16.3	28.8+	Points to three pictures
139		22.8	16.0	27.9+	Names two objects

Table C-8 continued

S.No.	Highly Differing Bayley Placement	50%	(3% -	97%)	Item Description
		Age placements in months			
140	25.3	22.9	17.8	28.7+	Discriminates cup, plate and box
141	22.8	23.5	16.1	28.7+	Mends broken doll marginally
142	25.3	23.8	18.97	28.3+	Train of cubes
143	25.3	23.8	18.2	28.6+	Completes blue board in 150 seconds
144	24.9	24.1	16.5	29.0+	Names 3 objects
145	25.3	24.3	18.98	27.9+	Pink foarm board : reversed
146	26.0	24.3	18.5	28.8+	Completes blue board in 90 seconds
147		24.4	17.4	27.8+	Names watch : 4th picture
148	23.5	24.5	17.1	27.95+	Points to 5 picture
149		24.5	18.2	27.6+	Names 3 pictures
150		24.8	18.0	27.9+	Names watch : 2nd picture
151	28.0	24.9	19.3	28.2+	Completes blue board 60 seconds
152	25.6	24.97	19.2	29.9+	Folds paper
153	26.0	25.2	19.9	29.3+	Immitates stroke : vertical & horizontal
154	28.1	25.7	18.97	28.8+	Understands two preposition
155	22.6	26.1	16.8	28.9+	Builds tower of 6 cubes

Table C-8 : continued :

S.No.	Highly Differing Bayley placement	50%	(3% -	97%)	Item Description
		Age placements in months			
156	23.6	16.4	16.8	28.4+	Mends broken doll approximately
157	25.5	27.1	18.98	27.9+	Names 5 pictures
158	30.0	27.1	19.5	29.6+	Understands 3 preposition
159	26.0	27.5	19.98	28.6+	Points to 7 pictures
160	30.4	27.7	20.3	29.99+	Concept of one
161	25.8	29.0	19.9	29.0+	Pegs placed in 22 seconds
162	24.8	28.8+	18.97	28.8+	Mends broken doll exactly
163	29.6	26.9+	26.9	26.9+	Builds tower of 8 cubes

APPENDIX-D

APPENDIX D

Items in the Research Form 1961, which are modified in published B.S.I.D.(1969).

Scale	Item No.		Remarks
	Research Form	Published	
Motor	9	10	*
	10	9	
	11	11	
	13	13	Instructions for administration are different.
	19	18	
	24	24	
	26	25	
	33	33	
	44	43	
	48	48	
	No such item	63	New item
	66	omitted	
		67 - 70	New items
		72 - 81	New items
Mental	1	6	
	2	1	
	3	5	
	9	9	
	20	22	

* No specific remarks about the modification of the items are made when these are mainly in the language of the instructions.

Appendix D continued

Scale	Item No.		Remarks
	Research Form	Published	
	33	34	Distance between two objects reduced to 8" from 18".
	38	39	
	45	45	
	47	47	
	48	48	
	50	50	
	56	56	
	61	62	
	62	63	
	73	73	
	76	75	
	90	88	
	99	99	
	109	Omitted	three holed board.
	No such item	114	completely new
	116	115	No six picture card in kit.
	128	130	
	135	132	
	141	139	
	143	141	
	158	148	
	129	126	Area of tipping cup on doll's body reduced.

Appendix D continued

Scale	Item No. Research Form	Item No. Published	Remarks
	133	omitted	
	no such item	131	
	144	145	
	145	144	
	125,130,150	120,137,151	Position of removed blocks not the same
	151	154	
	160	158	
	163	163	

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